ROCKS AND MINERALS

MINERALOGY
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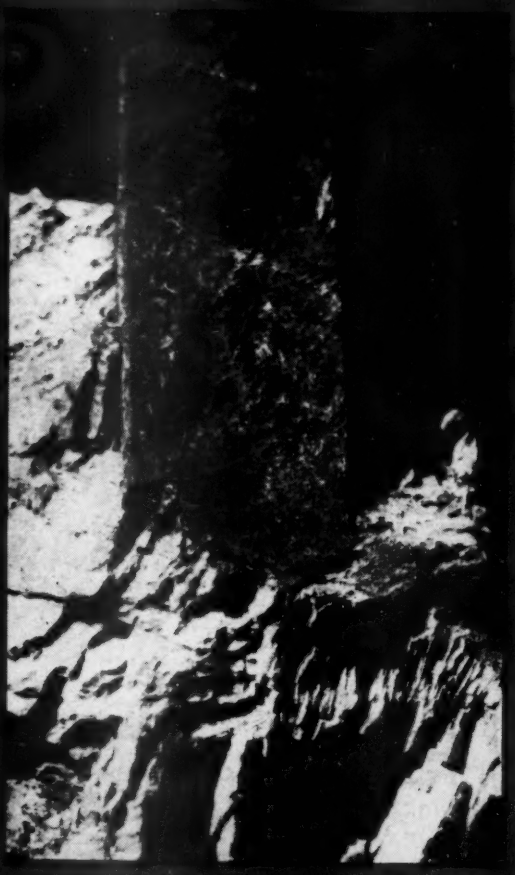

Antelope conglomerate, Arroyo Seco Canyon, Los Angeles Co., Calif. Marna W. Gilbert collection, Pasadena, Calif. Photo by Marna W. Gilbert

60c

MAY - JUNE 1955
Whole Number 246

62nd LIST OF FINE MINERALS

AZURITE, Chessy. Grp. of large xls. partly Malachite. 2¾x2	$6.00
ANDRADITE, Langban. Brown xls. w. Rhodonite on ore. 2½x2¼	2.50
TORBERNITE, Saxony. Xls. scattered on rock. 3x1½	2.00
TORBERNITE, Xlline. scales on rock. 2x1	2.00
SEPIOLITE (MEERSCHAUM), Asia Minor. Polished nodule. 2x2x2	2.00
PSILOMELANE, Herdorf, Germany. Fine stalactitic mass. 4x3x2	2.50
MAGNETITE, Tyrol. Large xl. mass showing dodecahedral faces. 2x2¼	2.00
PYRARGYRITE, Saxony. Xld. mass, no gangue. 11/4 x 7/8	3.50
APATITE, Devonshire. Opaque white ¾" xls. w. Tourmaline, etc. 3x2½	2.50
ALBITE var. PERICLINE, Tyrol Well xld. on rock. 3x2x2	2.00
EPIDOTE, Franconia, N.H. Good xls. in Garnet rock. 2x2x1½	2.00
HYDROZINCITE, Van Mine, Wales. Mass w. rippled surface. Fl. 4x2½	2.00
VONSENITE, Riverside, Cal. Granular xlline. mass. 3x2½	2.50
QUARTZ var. MILKY QUARTZ, Ouray, Col. Grp. 1" xls. 3x2½	3.00
BARITE, Derbyshire. Brown stalactite, polished all over 3½x2	3.50
MAGNETITE, French Creek, Pa. Xld. on mass w. PYRITE xls. 3x2x2	2.50
TOPAZ, Chatham, N.H. Colorless xl. 1¼x1¼. Not cuttable.	7.50
HEMIMORPHITE (CALAMINE), Bleiberg, Austria. Xld. mass. 3x2	2.00
TETRAHEDRITE, Cornwall. Large xls. coated with film of brilliant CHALCOPYRITE; with some Quartz. 3½x2½. Fine "old timer".	7.50
SIDERITE, Cornwall. In large lenticular xls. on Quartz xls. 3x2½	5.00
CERUSSITE, Tsumeb. Good xld. mass. 2½x2	3.50
PHARMACOLITE, Silesia. Micro. Xld. Pinkish tufts on rock. 3½x2	2.50
TUNGSTENITE, Emma Mine, Utah. Disseminated in rock. 3x2x2	3.00
TOURMALINE, Pierrepont. Brilliant black xls. w. xld. Quartz. 3x2x2	2.50
FLUORITE, Weardale. Grp. of green twin xls. 3x2	3.00
LAZULITE, Zermatt. Disseminated in Sericite Schist. 3x2½x2	2.50
WILLEMITE, Belgium. Mass of minute brown xls. Not Fl. 2x2	2.00
IDOCRASE (VESUVIANITE), Templeton, Que. Red- brown xls. in rock. 2x2	2.00
GENTHITE, Wood's Mine, Pa. Green incrustation on Chromite. 3x2½x1	2.00
SILVER, Cobalt. Xld. in rock, polished slab. Brilliant. 2¼x2	5.00
CLINOCHLORE, Brinton's, Pa. Text-book xl. 3x3x1	2.50
BISMUTHINITE, Cornwall. Well xld. in cavities of matrix. 2x1¾	5.00
COPPER IN CALCITE, Michigan. 1¼" brilliant xl. w. matrix. 2x1¾	3.00
DESCLOIZITE, S.W. Africa. Brilliant xls. w. matrix. 3½x3x2	6.00
GROSSULARITE, Crestmore, Cal. Xld. with Idocrase. 3x3x1½	3.00
EMBOLITE, Broken Hill, N.S.W. Coralloidal on matrix. 2½x1½	2.50
EPIDOTE, Tyrol. Fine termin. translucent xl. 2¼x⅜"	5.00
SCHEELITE, Porcupine, Ont. Solid xlline mass. Very fl. 2x2x1	2.50
HEMATITE, Elba. In brilliant xls. on mass. 2x1½	3.00
MIMETITE v. CAMPYLITE, Cumberland. Orange- ylw. xls. on rock. 2x1¼	2.50
QUARTZ v. FIBROUS QUARTZ, Providence, R. I. 3½x1½	1.50
PYRRHOTITE, Romania. Fine grp. bright unaltered "rose" xls. 3x2	12.50
SMITHSONITE, Tsumeb. Olive- green. mamm. mass w. xld. surface. 3x2	3.00
MALACHITE v. "VELVET" MALACHITE, Nevada Micro. xls. on rock. 3½x2½	5.00
LITHIOPHILITE, Hebron, Me. Xlline. mass 3½x2½x1¼	2.50
BOTRYOGEN, Chile. Xlline. mass w. Copiapite. 3x2x2	2.00
SILVER, Michigan, 1" xld. erect mass on matrix. 1½x1¼	6.00
PHOSGENITE. Sardinia. xls. in cavity of granular Galena. 2x1½x1½	3.00
PYROMORPHITE, Baden. Grass-green xld. aggregates on rock. 3x2	2.50

HUGH A. FORD

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Telephone: BOwling Green 9-7191

No list furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PETER ZODAC, Editor and Publisher

America's Oldest and Most Versatile Magazine for the Mineralogist, Geologist, Lapidary.

Published Bi-Monthly

OFFICIAL JOURNAL

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CHIPS FROM THE QUARRY

Coming Events

June 16-19, 1955: Rocky Mt. Federation Show. Mountain View School, Rawlins, Wyo. General Manager, Ralph E. Platt, 2105 E. Lincolnway, Cheyenne, Wyo.

June 23-25, 1955: Midwest Federation Convention, Hotel Detroiter, Detroit, Mich.

July 8, 9, 10, 1955: International Gem and Mineral Exposition (16th Annual Convention, California Federation of Mineralogical Societies). Civic Auditorium, San Francisco, Calif. Up to May 15th please address all inquires for space to Ralph Paine, 119 - 28th Ave., San Francisco 21, Calif.

July 30-31, 1955: North Lincoln Agate Society will held their 13th Annual Agate Show in the De Lake Grade School on Hiway 101, Oceanlake, Oregon. Lots of parking space. Hazel Lacey, Sec., Wecoma Beach, Ore.

ATTENTION SUBSCRIBERS!

ROCKS and MINERALS comes out once every two months as follows:

Jan. - Feb., out about	Feb. 20
March - April, out about	April 20
May - June, out about	June 20
July - August, out about	Aug. 20
Sept. - Oct., out about	Oct. 20
Nov. - Dec., out about	Dec. 20

REPRINTS AVAILABLE

There have been so many requests for reprints lately that the following bit of information may be of value. Reprints can be supplied and at the following rates, approximately:

100 copies	2 pages	$3.75
100 "	4 "	7.25
100 "	6 "	10.25
100 "	8 "	12.75
100 "	10 "	15.00

All reprints must be ordered in advance, before the articles makes their appearance in print.
files.

Kicks - Kicks and More Kicks

During the last week of April, R & M received more kicks then it ever received before, all put together. Letters, post cards, telephone calls, telegrams and even personal calls — all had one thing in common — KICKS. Why all these kicks? Simply because the March-April issue was 3 days late!

The March-April issue should have come out April 20th but because something went wrong at the printers, it did not come out until the 23rd. Of course it takes a few days for a copy to reach a subscriber, and especially if he lives west of the Mississippi.

We know R & M is eagerly awaited by its thousands of subscribers and readers but we never realized that it is an agonizing wait when an issue is 3 days behind.

We have called this matter to the attention of our printers and they were so overwhelmed with grief that they just had to shut down for a day. They have recovered their composure and have promised us that this issue (May-June) will be out on time, June 20th, — and perhaps a few days earlier.

Photo on the Cover

The photo on the cover is a typical allanite crystal measuring 3¼ x 1¼ x ¼ inches in feldspar matrix from Pocoima Canyon, Los Angeles Co., Calif. This fine crystal is in the collection of Mr. Marna W. Gilbert, Pasadena, Calif. (Photo by Mr. Gilbert).

See article in this issue, p. 237, on the locality which may have produced the world's largest allanite crystal.

Attention Subscribers

When you send in a change of address, please let us have your old address also. It helps us in locating your name in our

A New Discovery of Topaz Crystals

Near Conway, New Hampshire

By B. M. Shaub
Northampton, Massachusetts

In the vicinity of Conway, New Hampshire there are a number of interesting mineral deposits which have claimed the attention of mineral collectors for several decades. The more noted locality is the one at the red granite quarry at Redstone, a few miles northeast of Conway, Fig. 1. Another and more recent locality is known as the Lovejoy "gravel pits" which are located a couple of miles northwest of Conway, Fig. 1. These are owned by Mr. H. C. Lovejoy of Conway, New Hampshire.

Mr. Lovejoy acquired the land, on which the pits are located, about 1920 from a paper company. Since that time he has been selling the disintegrated, but not decomposed, coarse-grained granite material for resurfacing driveways, walks and streets. The pits and disintegrated granite cover an area of about 150 acres.

At both localities the bedrock is a coarse-grained granite containing open fissures and/ or miarolitic cavities lined with crystals consisting chiefly of smoky quartz and microcline which are usually a couple of inches long although they may reach ten or more inches in the larger cavities. At Redstone the granite is fresh and solid. It is a massive material suitable for building blocks or monumental stone, for which it has been used. At present, however, most stone work has become prohibitively expensive. The reverse is to be found at the Lovejoy "pits". Here the coarse-grained granite has undergone disintegration but not much decomposition. The large grains have been loosened by the breaking down of the cementing or interstitial minerals so that the grains are now freed and the resulting unconsolidated material may be readily moved with power shovels or by hand tools. It is quite surprising that in this locality the surface disintegration products of the granite, which was undoubtedly disintegrated in pre-glacial times, were not completely carried away by the glaciers, but were allowed to remain in place and often practically undisturbed. Within the disintegrated material there are large boulders of solid granite which show rather sharp boundaries between the fresh and disintegrated parts, the weathering having progressed along joint planes and other loci which were permeable to the weathering solutions.

During quarrying operations in the past the presence of some small crystals of quartz and feldspar were noted and these have drawn collectors to the pits in search for them and other minerals that might be present.

In searching for crystals one may dig at random to locate the remains of the former fissures and cavities which are now filled in by debris. It is best, however, to pay some attention to certain possible leads as they may indicate the probable zones along which the crystals may occur. As the granite at the Redstone Quarry and at the Lovejoy pits is quite similar in composition and texture, and as the crystals at both places occur in fissures or miarolitic cavities, one should locate, if possible, some evidence of these structures before digging; however, the quarrying operations may have destroyed most of them. The presence of pieces of graphic granite is one of the best indications that the remains of a pocket of crystal-lined cavity may be nearby. One should endeavor to follow up such a lead if the material has not been too badly disturbed. If one first searches for the leads which may direct him to the site where crystals lie hidden, he is likely to have to devote considerable time to the preliminary searches. If in a reasonable time they do not show up any desirable structural indications, it is best to dig in the areas where previous diggers have been successful, providing such locations are known or can be found. A successful digger is most likely to fill in his excavations when leaving the site at the end of the

day. This is a type of camouflage, for he is no doubt planning to resume work at the same place on a later date.

The occurrence of the crystals in the disintegrated granite is easy to understand. During the late stages of crystallization of the granite magma there were still residual magmatic materials which became more and more fluid as crystallization progressed and which had collected to form irregular masses within the magma as it solidified and thereby produced miarolitic crystal-lined cavities; or on the other hand the fluids may have been tapped and forced into fissures which were formed in the already more-or-less solidified parts of the granite. In these situations the mineral materials in the final or residual solutions crystallized to yield the good crystals which are now in the disintegrated debris because the surrounding rock has slowly been reduced to a granular mass by weathering processes which have loosened the grains. The late solutions from which such crystal cavities have formed are known as deuteric solutions and the crystals thus formed are typical *deuterocrysts,* (1, P. 579).

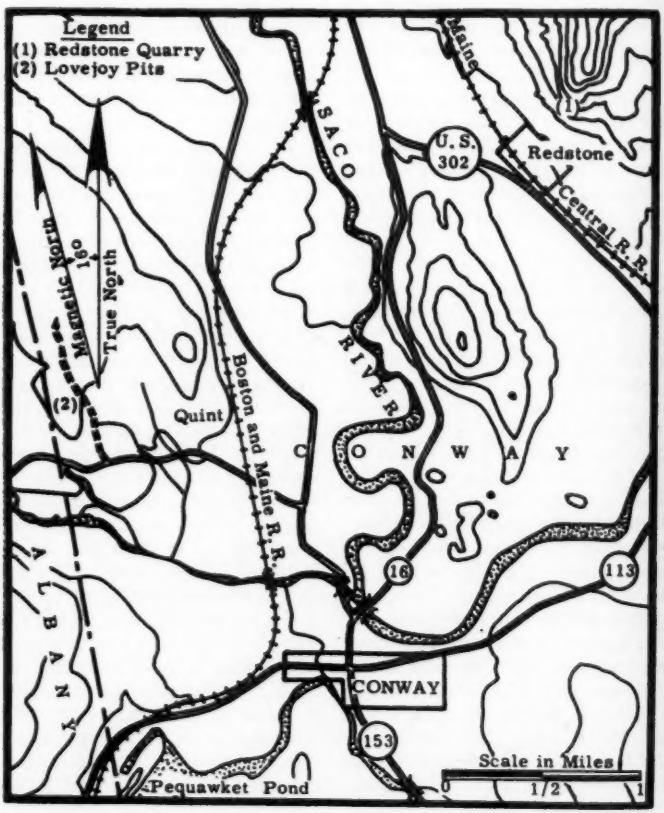


Fig. 1. Location of Redstone quarry (1) and the Lovejoy pits (2). The area shown on the map is from the North Conway and Ossipee Lake, New Hampshire, Quadrangles.

It has been stated that the disintegration of the coarse-grained granite is due to radioactivity This is not the case, for there are no uranium-bearing minerals present in identifiable quantity either primary minerals or alteration products. The only indication of any radioactivity is that which has yielded the smoky quartz crystals, and in this case the irradiation probably occurred at the time of or before the development of the crystals.

The initial discovery of the large topaz crystals at the Lovejoy pits was made by Orman McAllister on Friday, August 13th 1954. The lot of crystals found by him consisted of sections and terminations of 10 to 15 topaz crystals as well as large crystals of smoky quartz and microcline, Fig. 2. Many of the topaz crystals had been broken along the basal cleavage planes into several dozen pieces. The largest of these was 2½ inches long by 2 5/16 inches in width, Fig. 3. It probably represents a section of a crystal 5 to 7 inches long. One topaz point was 3½ inches long by 1 7/8 inches in width. Another point was 2 inches long by 2 inches wide, lower left, Fig. 2. In addition there were a number of smaller points and many crystal sections which did not fit together.

In keeping with the large size of the topaz crystals in the pocket, the other crystals present likewise were of much larger proportions than those usually collected. There was a microcline crystal 10 inches long and 4 by 4 inches in cross section; a quartz crystal 10½ inches long and 4 by 6 inches in cross section was in the lot, Fig. 2. In addition nearly a half bushel, several dozen at least, of smaller smoky quartz and mircrocline crystals were collected. The quartz crystals are somewhat rough and sometimes contain small crystals in overgrowths in parallel positions. While the smoky quartz is more-or-less transparent to translucent, there is probably not much gem quality material present.

Prior to McAllister's discovery of the large topaz crystals, collectors often visited the area but only a few were successful in finding even very small topaz crystals

Fig. 2. Orman McAllister holding the 10 inch microcline and 10½ inch smoky quartz crystals; Mrs. B. M. Shaub is holding the larger topaz crystals, all from the Lovejoy pits.

although rough smoky quartz crystals up to several inches long were frequently found in association with microcline crystals. Following the discovery of the large specimens some of the old timers, Fig. 4, mineral club members and others, Fig. 5, visited the area and searched for topaz, yet only a few individuals were rewarded, mineralogically, for their digging.

Most mineral collectors have long ago learned that the success of the usual or average mineral collecting trip is not to be measured by a lucky discovery of some choice crystal that has escaped notice and had been thrown onto the pile of waste rock, but the ever present excitement of conducting an outdoor search is ample satisfaction for making additional trips. Then there is the good fellowship of other collectors and a good picnic dinner to make the trip a real success. Much of the reward obtained for searching for crystals is in the exercise one finds at digging and walking the woodland trails together with a fine day's outing where some of the processes of inanimate nature are exposed for observation in the rock excavations.

Owing to the very nature of the occurrence of topaz in the larger miarolitic cavities and fissures, one who is lucky enough to dig into one of these rare occurrences is quite likely to find a dozen or more crystals of topaz and many rough crystals of smoky quartz and microcline.

Among the few who dug into a concentration of crystals were Frank Leggett of Meredith, New Hampshire and Burnham Weeks of Lakeport, New Hampshire,

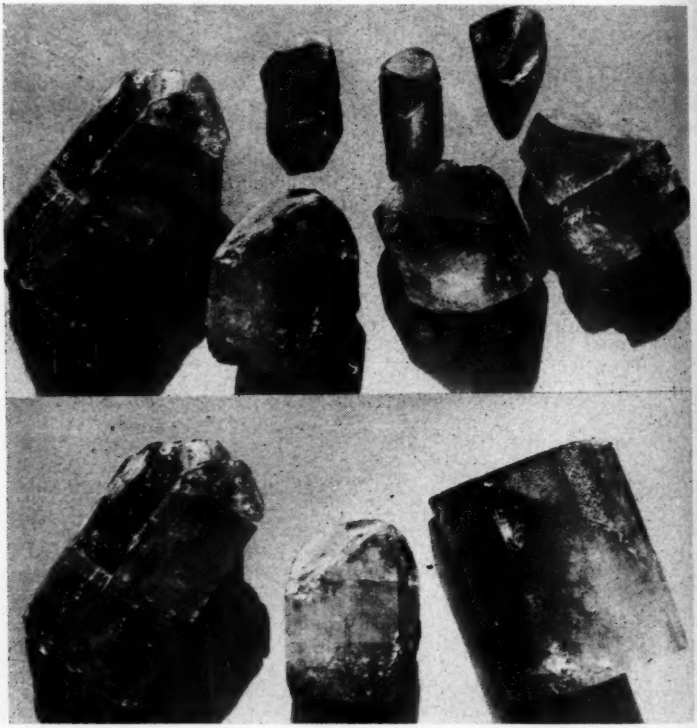


Fig. 3. Topaz crystals collected from the Lovejoy pits, Friday August 13th, 1954 by Orman McAllister. The section of a crystal on the lower right is 2½ inches long and 2 5/16 inches wide, while the one on the upper left is 3½ inches long and 1 7/8 inches wide.

Fig. 4. Charles F. Marble, dean of Maine mineral collectors, was among the diggers and fortunately located a few crystals, as one would expect.

Fig. 5. Collectors enjoying an outing at the Lovejoy pits: left to right, Mrs. B. M. Shaub, Frank L. Leggett, Mrs. Burnham Weeks, Burnham Weeks - in pit, Charles A. Weeks, Charles F. Marble, Mrs. Charles A. Weeks, (the next collector is unknown) and Roland Chicoine.

Fig. 6, who together located from 15 to 20 crystals up to 2½ inches long, Fig. 7 Associated with the topaz were many crystals of smoky quartz, some quite dark in color, while others were rather light. Most were cloudy and unsuited for cutting. Some of the quartz crystals were 8 to 9 inches in length, Fig. 8.

A few crystals of topaz were reported to have been found by others but the writer has not seen any of the crystals reported except the one found by Charles F. Marble. This crystal is between one and one half inches long, quite clear and of a light brownish yellow color.

In some instances the groups of smoky quartz crystals still attached to microcline and graphic granite together with an occasional topaz crystal are coated with a heavy deposition of albite, cleavelandite, in radial, spherical overgrowths. At times only the points of the quartz and some of the other crystals protrude from the rounded albite masses.

A few of the topaz crystals and/or sections contained chipped places along the crystals. It is interesting to speculate as to the manner in which the bruises occurred. As the crystals and/or sections were found buried in the disintegrated rock from which they were removed without striking them heavily with digging tools, and since they were below the reach of bulldozers and power shovels, it is probable that the bruising as well as the fracturing of the topaz along the cleavage planes were the results of the falling of the various large crystals onto the other crystals and bruising them while still attached to the walls within the cavities or while on the floor or fill at the bottom of the open spaces or during the fall. The disintegration of the wall rock from time to time loosened the crystals

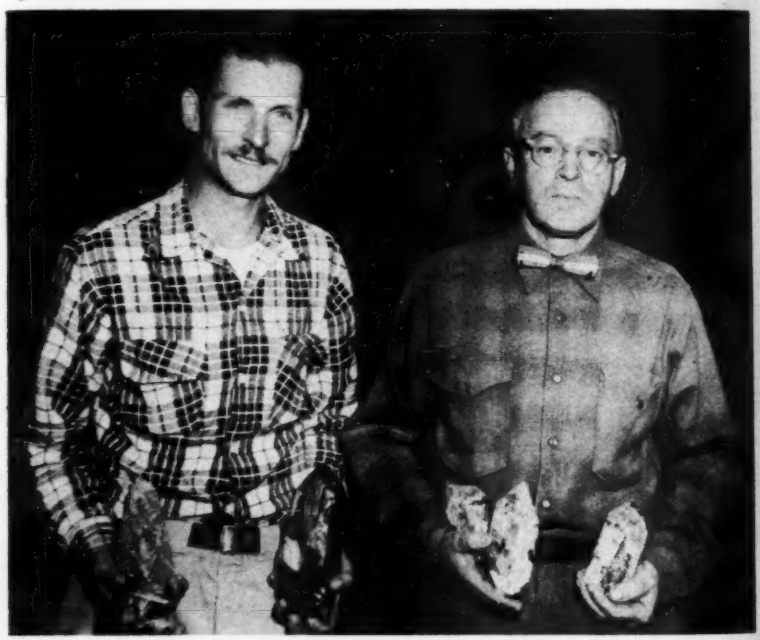


Fig. 6. Burnham Weeks (left) and Frank L. Leggett with quartz crystals obtained from the Lovejoy Pits.

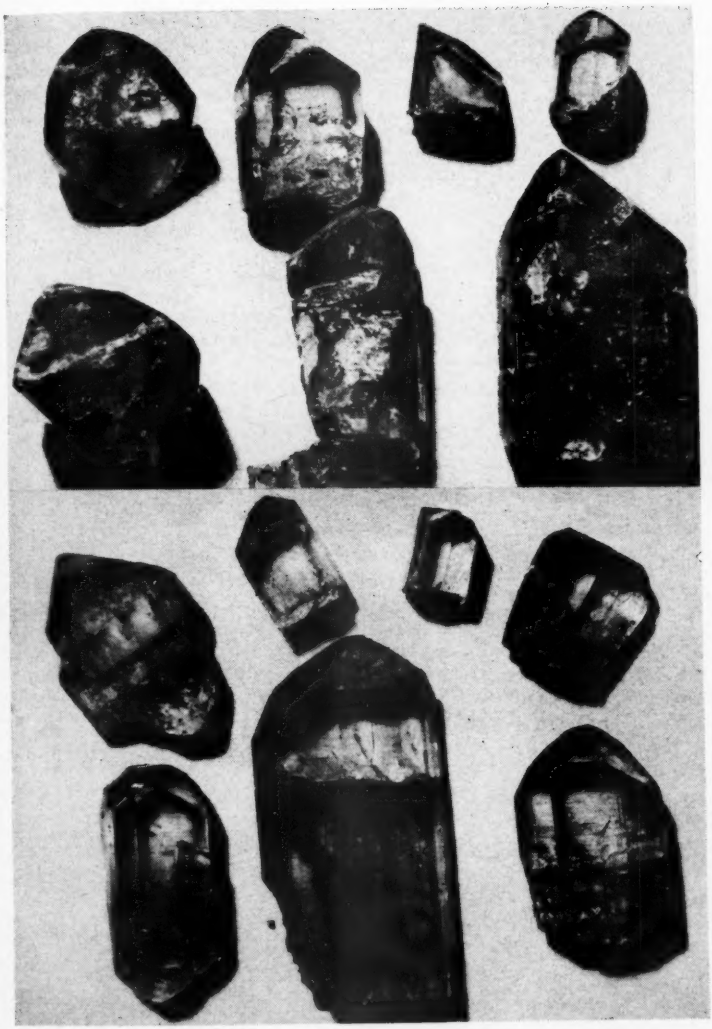


Fig. 7. A collection of topaz crystals recovered by Weeks and Leggett. The crystal at the lower center is 2½ inches long.

from their attachment to the graphic granite walls of the granite and the fall experienced by the crystals could have been from a few inches to 10 ,20 or more feet. The more soluble minerals that may have been associated with the topaz, quartz, microcline, albite and the other more resistant species have been completely removed if any were present. A few grains and crystals of fluorite were noted.

The prism faces of the topaz crystals were in general clean and lustrous while the terminal faces were usually etched, dull and occasionally slightly coated with decomposition products. Many of the crystals have been broken transverse to the prism zone. The sections can sometimes be matched and the crystal restored. Among the lot found by McAllister there were many sections which could not be matched. Those found by Leggett and Weeks were smaller and not broken into as many sections.

As gem quality topaz the material will not afford more than an occasional clear, perfect gem of from 5 to 10 carats although a number of the crystals would produce larger gems but they would contain inclusions, cracks and feathers which would detract greatly from their appearance as cut stones. The color varies from nearly colorless in the lot found by McAllister to a light brownish yellow for those found by Leggett and Weeks. The greatest value of the crystals will be as cabinet specimens and representatives of the mineral suite of the Lovejoy pits.

Other notable discoveries of topaz crystals in the same general area of New

Fig. 8. A sample of smoky quartz crystals collected by Leggett and Weeks.

Hampshire and Maine were by Edgar Anderson who made the original discovery on Baldface Mountain, near North Chatham, New Hampshire in 1897. A later find was made by Fisher in the town of Topsham, Maine in 1933. Topaz crystals are present but quite uncommon in some of the pegmatites in the adjoining areas in Maine.

Before going to the pits to dig for crystals one should first obtain permission from Mr. Lovejoy, as the minerals actually belong to him. Although the expense of recovering the crystals is probably many times what they are actually worth from an economic or commercial point of view, yet the collectors who wish to dig for the minerals should first obtain permission from the owner who lives in Conway, New Hampshire.

To reach the pits one leaves Conway at the intersection of routes Nos. 153, 113, and 16. These routes meet at the stop light on the main street. Follow route 16 north for .22 miles and turn left onto the Passaconaway road. A splendid little covered bridge is reached at .33 miles Continue on the black topped road for .55 miles from the bridge and then turn left on another black topped road for a mile where a gravel road leads into the woods on the right or north. The pits are located on the left side of the gravel road at a distance of a quarter of a mile.

The area covered by the disintegrated granite is rather extensive, hence it is unlikely that the locality will be worked out in the near future and the succeeding generations of collectors may find from time to time additional pockets of minerals some of which may surpass any specimens now known from the area, in size and beauty.

The writer is indebted to Mr. E. L. Sampter for calling the discovery to his attention. He wishes to express his appreciation to Mr. Orman McAllister of Lovell, Maine, the discoverer of the large topaz crystals, who placed his specimens at the author's disposal for photographing and measuring. Many thanks are also due Mr. Frank Leggett of Meredith, New Hampshire and Mr. Burham Weeks of Lakeport, New Hampshire, two ardent mineral collectors, who made their fine collections of crystals available for photographs to accompany this article. It is because of the diligent work of such able and untiring mineral collectors that outstanding additions to the mineralogy of New England are being made continually and in addition many mineral cabinets are enriched and made more valuable for examination and study by contemporary and future mineralogists.

REFERENCE

1. Shaub, B.M., Paragenesis of the Garnet and Associated Minerals of the Barton Mine near North Creek, New York; AMERICAN MINERALOGIST, Vol. 34, pp. 573-582, 1949.

Some Collectors not Welcome!

I recently visited a semi-precious stone mine and found out that the owner was classifying those interested in minerals on the basis of whether they were doing good, such as a teaching profession, or whether they were merely collectors, the latter mentioned not being welcome, due to his unfortunate experience in having people come on his property and leaving the gate open so his stock can get out, taking some minerals that relatives had in a collection, and digging up his pasturage, and leaving holes there that he had to have smoothed out. The owner said that he would not have believed that the public would have so acted until he experienced it himself. He gave me some minerals which were on the ground and would not accept pay for them, though I offered to do so three different times. I do feel that the collecting fraternity ought to know that the acts of, I hope, only a few, can make it hard for a large number who would be considerate.

Fred M. Davis
510 Krise Bldg.
Lynchburg, Va.

March 7, 1955

Subscriber writes new book!

One of our subscribers, Daisy Pat Stockwell. Imperial, Mo., has written a book "Land of the Oldest Hills" which will soon be printed. Mrs. Stockwell is well known to many of our subscribers as she is a writer on geological subjects. Her new book covers the Ozark Mts. of her state. The book will contain approx. 120 pages, large 12 mo., 22 illustrations in black and white, and will sell for $4.00 a copy. Order direct from Daisy Pat Stockwell, Imperial, Mo.

WORLD'S DEEPEST WELL ABANDONED

After more than 3 years of drilling, the world's deepest well, located in the Paloma oil field near Bakersfield, (Kern Co., Calif.) was abandoned. A new world's depth record in oil well drilling was established on August 20, 1953 when the well exceeded the former record depth of 20,521 feet.

The well was spudded in on October 23, 1951, and abandoned January 10, 1955, after having penetrated to a total depth of 21,482 feet. Approximately $2,250,000 had been spent on the venture. The brunt of the cost, approximately $1,900,000 will be borne by the Ohio Oil Company. The remaining cost will be shared by The Texas Company, Western Gulf, Lloyd Corporation, Hancock Oil Company, General Petroleum Corporation, and Pacific Western Oil Company. These companies, as well as Ohio Oil, hold acreage in the Paloma area.

The deepest test was scheduled to reach the Point of Rocks sand of Eocene age and the Oceanic sand of Oligocene (?) age. These sands are prolific oil producers in other Kern County fields. However, the objective sands were not reached when a stuck core barrel and drill pipe prevented deeper drilling, A 5-month fishing job recovered the drill pipe to 17,237 feet and further fishing was considered impractical. Since last May, The Ohio Oil Company tested possible oil producing sands above the stuck drill pipe. None showed commercial production.

GENERALIZED STATIGRAPHIC COLUMN

Recent	
Alluvium	0-1000
Pleistocene	
Tulare sands and clays	1000-4200'
Pliocene	
San Joaquin clays and sands	4200-5700'
Etchegoin sands and claystones	5700-8800'
Miocene	
Upper Miocene	
McLure-Antelope shale and Stevens sands	8800-13,725
McDonald shale	13,725-13,815
Middle Miocene	
Gould shale and Button Red sands	13,815-18,220'
Lower Miocene	
Media shale	18,220-18,480'
Carneros sandstone	18,480-19,140'
Santos shale and Agua sandstone	19,140-21,482'

Although the test well failed to find deep production in the Paloma field, it proved that modern rotary drilling equipment is capable of drilling to 21,000 feet. From 10,947 feet to the total depth, the well was drilled with diamond-faced bits and core heads. At 10,947 feet the heaviest string of casing ever run in California, weighing more than half a million pounds, was landed and cemented. At 20,003 feet the maximum bottom hole temperature, 335°F., was recorded. Oil men believe that wells 4 miles deep may become common in the future.

—Mineral Information Service, April 1, 1955 (Division of Mines) Ferry Bldg., San Francisco II, Calif.

SPOTTING URANIUM

Over 30 minerals can make a Geiger counter sing, but there's a simple test that shows prospectors whether or not they have struck uranium. Samples of uranium will give off telltale flashes when spotted with ultraviolet light. Usually, equipment for this ultraviolet testing needs electricity. But Menlo Research Laboratory has constructed a 5-oz. uranium tester that operates on sunlight.

The unit, a spectrum isolation chamber is a small box with two openings. One opening has a filter that admits the ultraviolet part of the sun's light, bars all other kind of light. The second opening is covered by a magnifying eyepiece. When an ore sample is placed in the box, the prospector can peer through the viewing lens, to see if his sample is giving off the right kind of light.

Source: Menlo Research Laboratory, Menlo Park, California.

A REMARKABLE OCCURRENCE OF ALLANITE & ZIRCON CRYSTALS FROM A SOUTHERN CALIFORNIA PEGMATITE

by Paul F. Patchick, Geologist

DISCOVERY OF A NEW LOCALITY

Editor's Note: Mr. Patchick is currently serving on active duty with the U.S. Army in Korea where he is attached to the United Nation's Korean Reconstruction Agency, Division of Mining, Taejon Mineral Laboratory, APO 94, c/o Post Master, San Francisco, California.

During the Spring of 1952 as an undergraduate in Geology at the University of California at Los Angeles, and while a student of Petrology under Dr. Kenneth D. P. Watson, I chanced upon a dusty specimen labled "zircon pegmatite" in one of the laboratory study-collection drawers. This discovery was to start the chain of events leading to the eventual location of what I believe to be possibly the largest single allanite crystals in the United States, if not in the entire world, and zircon crystals of exceptional mineralogical interest.

Excited over the nearness of the specimen's labled locality, "Pacoima Canyon", which was only about 35 miles from the University, I set out to find the exact location of the pegmatite and any pertinent details relating to the deposit that might be available. I went to my laboratory instructor, Dr. George J. Neuerburg, who was the original discoverer of the zircon pegmatites, but he only offered a vague description of the region, since it had been on a reconnaissance survey of the San Gabriel Complex that he found the pegmatite outcrops. He referred me to Dr. Donald Carlisle, a mining geologist, with the hope that he might be able to help me, since he had conducted a field trip there for his Economic Geology students not long ago, after first relocating the area from Dr. Neuerburg's directions. Dr. Carlisle remembered the spot, and soon we found its location on the U. S. Geological Survey's Little Tujunga topographic quadrangle. He also mentioned that hornblende and biotite crystals were to be found in association with the zircon crystals.

Armed with this information, I sought out Dr. Joseph Murdoch, Professor of Mineralogy at U.C.L.A. for further advice and consultation. He confirmed the location, and added that some crystals similar to ilmenite (?) in habit had been noted by several graduate students from the University when he last visited the locality with Dr. Carlisle.

I then proceeded to question Mr. Robert Cooney, one of the students who made the trip during the time in which the area was briefly examined. I knew Bob to be a rather enthusiastic mineral collector, and he proved this by relating to me his "find" of nice beryl crystals in a pegmatite near the zircon locality, but in the adjoining Pacoima Quadrangle to the southwest. He also told of his finding large "allanite" crystals in a pegmatite which cut across the road winding up along Indian Creek from Soledad Canyon in the Trail Canyon Quadrangle to the north. We found and marked this spot on the map, and I further proceeded to uncover additional information from another student whom I had learned also attended the field trip. Mr. Larry Ronneberg, now with Humble Oil & Refining's Geophysical Dept., when he found out how interested I was in the locality, volunteered to bring me some samples which he had collected on a return tirp to the area. This he did, and I was amazed when I observed the perfection of the terminations and the very large size attained by the crystals he showed me. Closer examination revealed many complex and rare crystal faces. Some of the crystals were rectangular in cross-section rather than the usual square habit. He explained that his best material was found in the talus slopes by employing simple screening methods, and was particularly effective after a heavy rain storm. He also told of seeing crystals in maxtrix nearly 8 inches long, and stated that zircons over 6 inches in length were not at all uncommon. I have since learn-

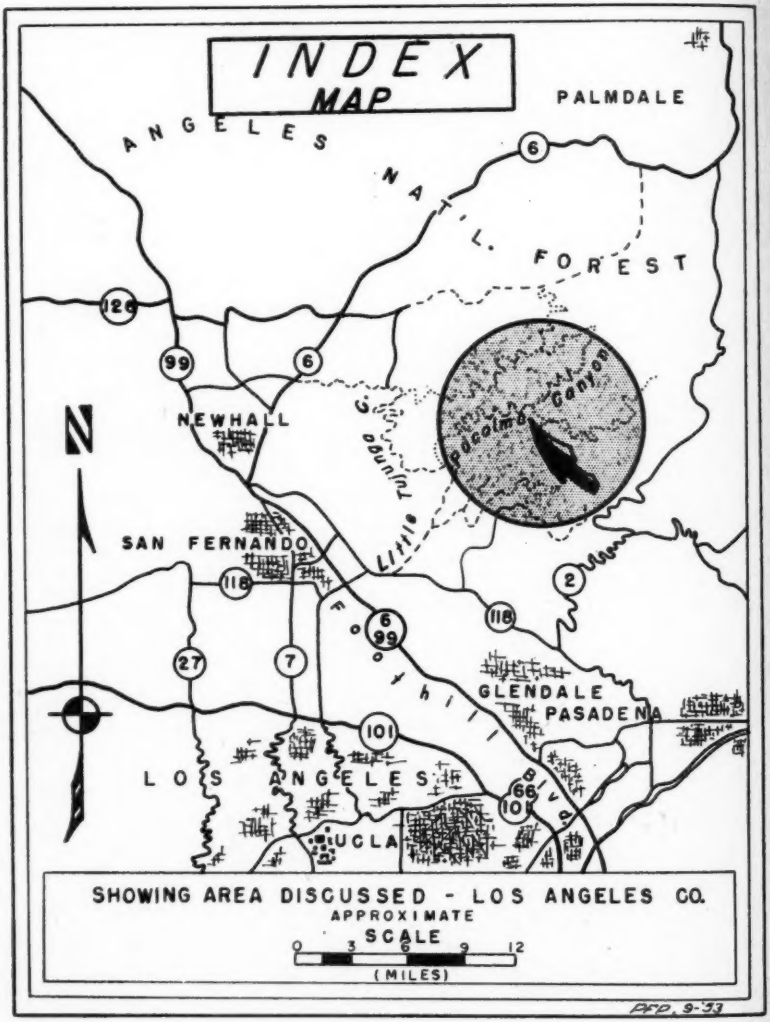
ed however, that although these dimensions are of the correct magnitude, the longer ones are nearly impossible to remove from the enclosing feldspar, especially if the terminations are to be successfully preserved.

A Lesson In Mineral Identification

I prepared at once for a trip to the locality, selecting as companions Mr. Ronald Thacker, who was recently Field Trip Chairman for the Mineralogical Society of Southern California, and Mr. Burton Jirgl, at present serving on active duty like myself, with the Armed Forces.

We timed our visit to coincide with a dry period between the fall rains, and made plans to explore completely the newly discovered "Pacoima Pegmatite", as we had already designated it. Thinking

PLATE 1.



that the back road up the mountain-side would afford easier access into the area as the topo-map showed numerous stream-crossings over the road in Pacoima Canyon, we began our accent up the backside of the San Gabriel's, following the old Indian Creek road, (Plate 1). So as not to miss Cooney's "allanite" pegmatite cropping-out along the road, we kept a careful lookout for the sharp, U-shaped bend in the road not far from the summit and the nearby powerlines. The spot described to us was not hard to find, for the loop in the road, the steep drop-off to the left, and the high embankment to the right, as well as the wide 10-15 foot dike cutting across the road were easily recognized.

This pegmatite was distinguished by a preponderance of large books and plates of biotite-mica associated with minor amounts of silvery-lustered muscovite masses. The cut on the right (as one goes up the road) yielded nothing which even looked like the "allanite" we expected to find there, but an examination downslope proved to be somewhat more fruitful. Here we found outcrops and float-blocks containing large, black, sub-metallic, subhedral crystals, surrounded by peculiar rusty-colored rings which we recognized at once to be some type of alteration product, possibly t he result of radioactive emanations. A closer look revealed tiny flakes of discolored muscovite crystals haphazardly distributed throughout circular cavities surrounding the masses and rough crystals of "allanite". Some of the masses measured up to 2 inches in diameter, and as far as could be determined, were crudely isometric, with no visable cleavage, but which exhibited very good dodecahedral parting. Since we were not yet acquainted with the physical properties of allanite, it was easy for us to mistake these dull, black, heavy blobs, with their unusual ferruginous appearing halos for allanite, which we anticipated finding at this locality. I later discovered upon returning to the University, that this mineral was highly magnetic, and furthermore, matched exactly the other properties listed for magnetite, even to halos of iron-rich alteration products surrounding the chunks and rough crystals shapes. Because I had forgotten the possibility of pegmatitic magnetite, it was simple to overlook the obvious and conclude erroneously as to the mineral's correct classification, particularly since I had been led to believe by a previously reliable source that I would find "allanite" crystals at this locality.

Continuing on to the area of primary interest, we wound our way slowly up the twisting and turning path-like and deeply rutted dirt road, not unlike a boulder strewn, brush-covered Army obstacle course. One of us was continuously forced to get out of the car in order to roll over the cliff large, jagged rocks which we could not possibly detour around. By the time we hiked into our destination (a recent landslide prohibited closer driving), the sun was sinking slowly behind the ridge line, and so it was decided to explore quickly and return for another try at a later date, but by a different route this time.

Second Trip Brings Success

At last, after locating the area, it remained only to find the specific mineral-rich parts of the outcropping pegmatite which could be seen extending for some quarter of a mile across the heavily wooded mountainside. This I was determined to do.

Mr. Marna W. Gilbert, President of the M.S.S.C. at this time, willingly offered his services when he heard my glowing description of the zircon-allanite bearing dike in the back-country of the San Gabriel Mountains. Then I let him see pieces of the pegmatite float we had found on the preliminary reconnaissance trip, with its jumbled groups of sharply terminated allanite and delicately tinted zircon crystals imbedded throughout. He wanted to leave almost immediately, so great was his interest. There was no doubt now that these remarkably well-formed tabular crystals were truly allanite, a cerium rich complex orthosilicate end-member of the epidote group, and not ilmenite, as suggested earlier.

It was late in the Spring when we ventured up the Pacoima Canyon road, and

as a result, the stream crossings were not the least bit difficult. Most of the time the stream disappeared into the alluvial valley floor, and consequently many of the fords were dry. By actual count, 50 crossings were made, and of these only 35 were wet. The crossings were all made on good hard gravel-bottoms, and accordingly no trouble was encountered.

Road Log to Pegmatite

The following is a road log-description of the route deemed best by the writer to the locality.

Having left Pasadena, here assumed for convenience as the base of operations, Colorado Blvd. should be followed eastward over Devil's Gate Dam through Flintridge, La Canada, and on to State Highway 118, Foothill Blvd. After passing through Sunland, the world's largest earth-filled dam near San Fernando can be seen on the left just before turning north, right on to Eldridge Avenue, not far from the dam itself. Here we begin the mileage at 0.0. miles, at the intersection of Foothill Blvd. and Little Tujunga Canyon (Plate 1).

Driving up the canyon on the narrow, two-lane paved road for a distance of 1.7 miles, we arrive at the entrance to the Angeles National Forest (indicated by an appropriate sign), and the accompanying Ranger Station. Here a pass to enter must be obtained if the trip is made during the summer months. But, in the experience of the author, it is doubtful if permission will be granted in times of extreme fire hazard. Past the fire station, the road continues to wind upward through spectacularly folded, twisted, and eroded Pleistocene, Pliocene and Miocene Strata until the summit is reached. Here, by the emergency telephone on the right side of the embankment, the southernmost extremity of the gently arcuate Pacoima Canyon is encountered. At this point, the entrance to the canyon is marked by a sign which reads: "Pacoima Canyon, Mendenhall Peak and Mount Gleason", while a steel swinging gate blocks-off the main road from the old fire road leading down into the canyon. Literally blasted out of the mountainside, this battered remnant of many hot. scorching, summer fires still serves as an invaluable lifeline to the watchful Ranger. During their ever constant mountain patroling and vigilance, roads such as these must be maintained, and hence giant bulldozers periodically keep the road in a rough state of repair. It is 10.8 miles from this locked gate, with its long string of linked padlocks, to the locality. The key obtained previously from the Ranger Station must be used to open the gate, which is 7.5 miles from our turnoff at Highway 118.

It will be rough-going to the pegmatite now that the pavement has ended. High bottomed cars or trucks will stand the best chance of coming through unscathed, although "low-slung" automobiles have made it with difficulty. Just beyond a dirt road to the right at 8.0 miles, a high stone wall can be seen which has been constructed for the purpose of preventing frequent landslides in the immediate area from engulfing the narrow and often precipitious road as it winds downward.

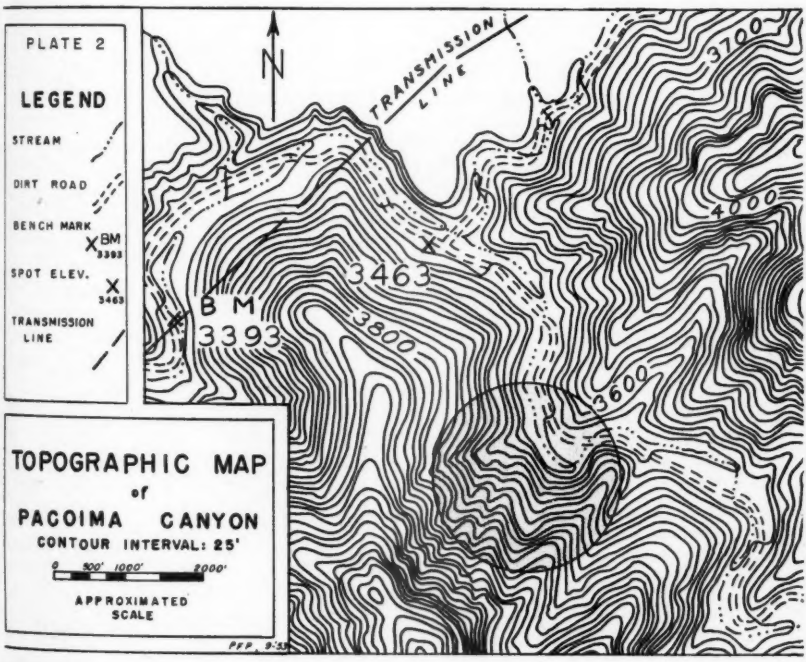
The first intermittant stream is crossed at 9.2 miles, and at the 14th fording, quite some distance away, a sign reading: "Pacoima Flats" may be noticed. A wide, grassy picnic-area, complete with tables and stone fireplaces distinguishes this spot. Also, the stream-crossing is the widest and the most cobbly that has been met with so far. Continuing onward, the road becomes somewhat better graded and not as steep as before, but soon two very steep stream crossings must be made before a wooden shack on the left is reached at 11.5 miles. Here a sign marked: "Private, Keep-Out" warns the visitor that this is private property.

The collector can now expect to find little or no human company in the rugged backcountry- of the Angeles National Forest, with the probable exception of an occasional power-line inspection truck and crew. Even the old-time prospectors, who never really seen to give up in their attempts ot "strike-it-rich", have left this region relatively alone. However, as one progresses through the canyon, scattered prospect pits and abandoned mine-tunnels and shafts can be seen, as the one to the left of the old shack up on the hillside, and the abandoned Ore Hill Mine Claim

on the right side of the road a short distance away. Just before coming to a similar abandoned house at 12.1 miles, and 24 stream crossings, another sign on the right marking the Pacoima Canyon Trail and Dorothy Canyon should be observed easily.

A small thicket of trees and saplings growing along the stream's bank near here creates a scene of tranquillity when contrasted to the chaparrel covered but more often barren mountainsides around us. Still another sign: "Spring Canyon", is located at 13.9 miles, followed by a more rutted section of our road which leads past a prospect pit on the left (14.6 miles) just beyond an adjoining dirt road at the other side which is generally closed to vehicles by a swinging gate. Seven more crossings (39 to here) brings us to the Terra Buena Trail marker (16.0 miles), and at 17.5 miles, we find ourselves nearing our destination, for at this point Lone Tree Canyon branches out northernly from Pacoima Canyon as the road swings around under the transmission lines once again. It is just a short .6 miles from here to the junction of the main canyon and the North Fork which is similarly marked by a small sign at 18.1 miles. Turning off to the south and following along a much poorer dirt road through a rather narrow canyon finally brings us, at a long 18.4 miles, to our desired goal (Plate 2). Parking for a number of cars or trucks is readily available in the sandy area near the U-bend in the stream along the side of the ridge which extends down to the road (Plate 3, Station 1).

We have now travelled a distance of 16.7 miles from the Angeles National Forest Ranger Station, or a total of 18.4 miles from Foothill Blvd. The average time elapsed since leaving the main gate should be approximately 45 minutes to



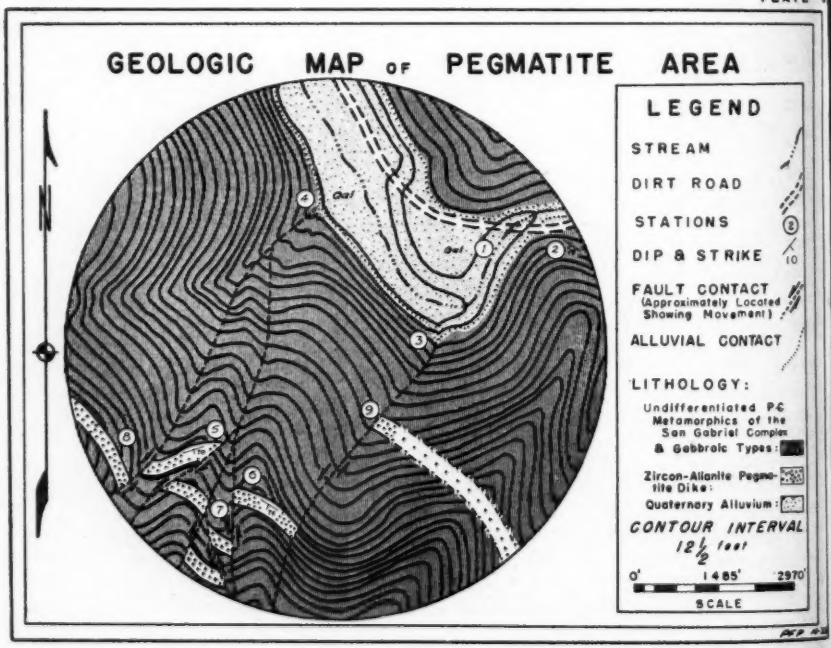
one hour, not including the half hour's drive up from State 118 to the Pacoima Canyon turnoff, where our excursion really begins.

Let's Look Around!

From the parking area a large, white quartz boulder in the stream bottom (Station 3) can be seen easily to the right of the road and beyond a large felled Douglar fir tree. It has rolled down from its former position high up on the side of the mountain (Station 9), either by blasting or by natural agents. I suspect the latter at the pegmatite lenses occur in what appears to be an old landslide area which has produced the amphitheater-like indentation one sees today.

The rock at first glance gives the appearance of a mass of milky quartz in place, but closer observation leads one to the conclusion that it is merely an extremely large float block. The quartz is very different from the usual milky varieties encountered in that it is highly fractured, with all the fractures parallel to one another, or very nearly so. The cracks change dimensions from 1/16" to ¼", with minor variations laterally. Examination with the hand lens revealed minute, incipient fractures: undoubtedly the result of great stresses, which, as later data indicated, were very prevalent at one time throughout the region. The rock does not consist wholly of this peculiarly lamellar-parted milky quartz as I had originally supposed, but contains mircrocline feldspar in large chunks which are widely scattered throughout the silicic matrix. One is easily deceived by the percentage of feldspar contained within the quartz, as the former weathers to a pure white of nearly the same shade as the quartz. Only close scrunity or a hard knife discloses the character of the two different minerals. Worthy of notice also are very small amounts of mica present in this behemoth-like monument which seemingly defies the forces of erosion. Petrologically then, it can be classified merely as a quartz-rich phase of the pegmatite family.

PLATE 1



A Crystal Collector's Paradise

A small canyon is soon encountered as one proceeds in a nothwesterly direction along the creek bed for a distance of 3000 feet from the quartz boulder. Here an examination of the small talus cone at the mouth of the "V" shaped canyon reveals what probably will be found in place farther up the steep mountainside.

Fairly good collecting for those not wishing to make the arduous climb to the outcrops my be had at this point, and in fact this is the most ideal place for those "sledge-hammer addicts" to break up rocks without the bother of carrying specimens back any great distance.

The canyon at Station 4 is very narrow and has been cut directly into the norite bedrock, thus forming many step-like ledges and waterfalls. Since the stream is intermittant during the summer months, it is usually dry and therefore easily traversed. This canyon branches aboot 1500 feet from its mouth, but the right fork is very brush-filled and steep. The left side is readily accessible, and most of the way up the hiking is not too difficult. Scrub oaks, yuccas, and gnarled manzanitas are the few vegetational impediments, with occasional poison-ivy vines growing in season along the banks above the canyon bottom. A few fallen trees and branches must be crawled under or around before Station 5 can be reached. At this point a large talus slope of rubble and block-sized fragments surrounds the first and lowest outcrop of the allanite-zircon pegmatite. It is here that the original discovery of the largest and finest zircon crystals was made by Dr. Neuerburg.

As mentioned before, the most complete crystals are to be found by careful and meticulous screening of the "dump". This dump is the result of much blasting by early-time prospectors who hoped that what appeared to be pure "bull" quartz would yield paying quantities of gold. The few previous collectors also have contributed to the amount of debris now almost filling the narrow, steep-sided canyon. In order to find the most perfect and complete crystals, it has become necessary to dig below the surface accumulation of of large blocks to the underlying and more smaller sized material. Rough hand-sieving methods will suffice to sort the larger and less desirable material from the smaller sized zircon-bearing fragments. It is quite common to find single terminated crystals lying loose in the earthy groundmass of the talus slope. However, the most complete crystals must be pried loose from the clutches of the enclosing feldspar in order to exhibit them at their best. This process of removing the matrix from the zircons is the most nerve-racking and time-consuming operation which must be performed once the specimens have reached the mineralogist's laboratory or before becoming a part of the collector's exhibit.

MINERALOGICAL NOTES

Apparently Station 5 represents a zircon-rich phase of the pegmatite, for at no other place in the dike are these crystals so abundant or so large and perfectly formed as here. Some observations have been made which may prove interesting to further workers, and the following discussion is presented with this purpose in mind.

Unusual Zircon Crystals

The Pacoima zircons are characterized by large size, hollow cores, associated minerals, perfection of terminations, complexity of crystal faces, peculiar cross-sectional shape, and their multi-colored fluorescence. Perhaps the most interesting of all these characteristics is the development of the hollow centers. Mr. H. Stanton Hill, of the Geology Department at Pasadena (California) City College has expressed several possible solutions for this peculiar phenomena of which the following appear to be the most likely:

1) The core of the zircon may have been broken down by the presence of radioactive elements in the primary fluids, but not in succeeding fluids. The core may have become altered to the mineral cyrtolite (containing uranium, yttrium and other rare elements), thus changing the internal crystal structure (metamict) and allowing selective dissolution of the centers. It is known that zircon is very susceptible to radiation damage, and the core might easily have contained ori-

ginally a small amount of the rare-earth elements thus making possible this change to metamict zircon, or cyrtolite. Several indicators that this is the most probable explanation lie in the extreme amount of progressive discoloration towards the crystal centers, the rotted crumbly appearance of the immediate surrounding matrix, and finally, the weak radioactivity of the crystals themselves. Normally zircon from various widespread localities is somewhat radioactive, such as the zircon from Norway (Arendal in Aust Agder, and Telemark), Japan (Takoyama, Mino Ken; Hagata and Oyama, Iyo Ken), Brazil (Caldas, Minas Geraes), and the United States (Massachusetts at Chesterfield, Hampshire Co.), to cite a few of the more well-known occurrences, but not increasing in radioactivity towards the centers as those from the Pacoima Pegmatite. However, the slight increase in radiation in MR/HR as determined by the Beckman Beta-Gamma Survey Meter is difficult to accurately measure, because the crystal cross-sectional area is relatively small in comparison with GM probe. But it is thought that there is a variance, admittedly very slight, from the face inward to the center when care is taken during the measuring operation. No chemical tests were made upon the material still remaining around the internal periphery, and further work of this nature will undoubtedly lead to a more exact interpretation.

2) Minute amounts of impurites such as the intimately associated apatite may have caused the zircon to grow a rim but no core. This has been done artificially with other substances according to Mr. Hill.

3) The zircon may have grown around mineral (perhaps apatite again, or even quartz) which since has been dissolved away.

The first stated possibility appears to be the best explanation with the evidence at hand, particularly as no apatite has been noted included in the zircon, even though it is abundant within the allanite. Secondly, the zircon centers have no distinct shape, but definitely appear to have been formed by decomposition or intense alteration.

Multicolored fluorescence of the Pacoima zircons was not investigated in any detail by the writer, but it may be stated that notable differences in color were apparent as the Ultra Violet light approached the terminations of the crystals examined. The bluish, semi-gemmy tips fluoresced one distinct color, whereas the brownish-colored body of the crystals another, although of lesser intensity and often not at all. This may have been due to a decrease in the activating impurities as the terminations were approached, but other causes are as probable. The color of fluorescence varies from a pale yellow to a strong orange glow under the Mineralight, with the darker colored crystals less apt to fluoresce. Fractured areas were noted to be more highly fluorescent than other non-fractured areas. The fluorescence also seemed to follow the fracture pattern in many instances. The relict material in the cores did not fluroesce.

It has been previously mentioned that the crystals are complex and exhibit a variety of crystal forms, many of which are uncommon. A few of the more easily recognized faces are: (111), (100), (311), (331), and (110), with the last mentioned form the most prominant.

Minerals associated with the zircon include the typical pegmatite suite of quartz, mica (biotite), and feldspar, with the addition of apatite and allanite. However, the allanite-rich phase (Station 8) of the pegmatite was not observed to contain anything more than a trace of zircon, with the exception of a narrow zone with abundant lath-like allanite crystals and stubby zircons exposed in an outcrop at Station 7.

The feldspar is a chatoyant flesh pink type identified as perthite, with some samples exhibiting a fine bluish play-of-color when viewed under strong illumination.

Large books and plates of biotite mica occur throughout the dike near Station 6 in close association with long chunks of hornblende with apatite and zircon inclusions. Hornblende crystals have been observed outcropping along the side of the road (Station 2) in huge, rough crystals measuring over a foot in length in a feldspar matrix, and as the dominant con-

stituent of a narrow, tabular, shallow-dipping, highly-faulted hornblendite dike.

Largest Allanite Crystals

Farther up the canyon past Station 7 and a waterfall, following along the heavily timbered mountainside, bold outcrops of the major allanite-rich dike may be easily observed. Here are found the exceptionally large and well-formed crystals of allanite, so named from the Greek word meaning "straight", although often the crystals are somewhat distorted, as at this locality.

Chemically, allanite has a formula similar to that of epidote, but with the addition of the cerium-earth elements: $(Ca, Fe)_2$ (AlOH (Al, Ce, Di, LaY)$_2$ $(SiO)_3$.

The following physical characteristics have been listed in standard texts for allanite: cleavage parallel to (100) and (001), and sometimes the (110) cleavage may be observed; crystals monoclinic, often tabular parallel to (100), also massive; fracture uneven or subconchoidal; brittle; hardness 5.5-6; specific gravity 3.0-4.2; luster submetallic, pitchy or resinous; color brown to black; subtranslucent to opaque.

Allanite is found almost always imbedded in perthite at the Pacoima locality and is believed to be associated with zircon, as previously stated, at Station 7 only. Generally biotite and hornblende are absent within the pegmatite, although abundant in the surrounding country rock and near the margins of the dike.

A further observation made regarding this assemblage of minerals is the poikalitic-like texture resulting from the seemingly non-preferentially oriented inclusions of euhedral apatite in the allanite crystals.

It has been previously mentioned that the best zircon crystals were to be found on the talus slopes and in dump material. However, such is not generally the case with allanite. The reader may wonder the reason why no loose crystals are found on the slopes below the outcrops rich in allanite. This is due in large part to the fact that the allanite occurs in an extremely weathered condition, and has also been subjected to great tensional stresses and enormous pressures. Small criss-crossing fracture patterns are to be seen on practically every allanite crystal observed. Indeed, unfractured allanite crystals are a rarity. Considering also the fact that the habit of allanite is elongate-tabular, and that its cross-sectional thickness is roughly 1/5 to 1/6 its total width, it is easily seen why even the smallest forces directed aganist the crystals would produce fracturing and distortion. Numerous observations made of many allanite crystals in the comparative collection at the U. S. National Museum, Smithsonian Institute, in Washington, D.C., have shown that distortion is the rule rather than the exception. Some of the Pacoima crystals are almost grotesque in appearance. They exhibit a variety of shapes: some bend sharply many degrees from the direction of elongation; some gently curve forming "L" shaped crystals.

Other features of these Pacoima allanites are their sharp, distinct, and near perfect crystal faces and terminations (Plate 4 — the photo on the front cover). The smaller crystals as would be expected, show many complex faces. Usually the smaller crystals are the most easily recovered, too. Conversely, the larger crystals are relatively simple in crystal face development. Furthermore, the large crystals tend to break across their width or shatter into many pieces when the coarse-grained pegmatite is broken in order to collect specimens. If a coating of clear lacquer is first brushed over and allowed to dry on the exposed crystal face before removal with sledge hammer and cold chisel, it will be found that the specimens are less likely to break during the process. If it is at all possible, the best collecting procedure is to leave the large crystals still in the matrix so that they may be worked on more carefully and thoroughly at home or in the laboratory where there are more facilities at hand. By employing this method successful extraction usually can be guaranteed.

It is possible that the largest allanites from this pegmatite exceed the dimensions of any known allanites in the world discovered to date. One crystal now in the Mineral Museum at the University of

California at Los Angeles (jointly collected and donated by Mr. Perry Ehlig of Tarzana, California, and the writer) measures almost 16 inches in length! It is over 6 inches wide and an inch-and-one-half thick. This thickness tapers gently at both ends, one of which is completely terminated. I have personally seen other crystals in the field which if could be removed successfully, would measure well over 18 inches from tip to tip! Truly a remarkable occurrence for such a rare mineral, don't you agree?

It is hoped by the writer that this brief discussion will serve to arouse and stimulate interest among those mineral collectors who are looking for the unusual in pegmatite deposits. It is further hoped that this article might be the means of bringing the recently discovered Pacoima Zircon-Allanite Pegmatite locality to the attention of other workers who may desire to extend more completely our present knowledge gained by this short study.

Helpful suggestions by Mr. H. Stanton Hill are gratefully acknowledged, as is the assistance given by the U.S. National Museum's Staff in Washington, D.C. last year. Mr. Perry Ehlig was one of several friends who collected samples with the author, and the former Miss Grace V. Hill aided in the transcription of the manuscript.

R & M Real Good!

Editor R & M:

A real Rockhound's magazine. Real good! Wouldn't be without it. Enjoy every issue.

Have some rock stories about Georgia if you are interested

Milton L. Reiner
103 Camellia Circle
Warner Robins, Ga.

Jan 24, 1955

Rockhound Is No Dog!

Editor R & M:

I painted a sign "Rock Hound" and put it up in front so if any came by they might stop. Yesterday I was sitting under the awning out front and a young fellow drove up in a truck to the filling station next door and read the sign out loud then hollered to me and said "How many kinds have you got." They think it is some breed of dogs.

Capt. F.J. Smith
P.O. Box 905
Mayport, Florida

A more interesting adventure!

Editor R & M:

Your wonderful magazine helps to make life a more interesting adventure.

Juliette Desport
1229-17th Ave. South
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April 10, 1955

R & M is a good guide!

Editor R & M:

Your magazine is educational, informative and is a good guide to rocks and minerals.

Simon M. Soboleff
Mining Engineer
Central, Alaska

Jan. 19, 1955

House of Crystals sells uranium deposit

The well known mineral dealers whose specialty is Arkansas quartz crystals—The House of Crystals, Inc., of Hot Springs National park, Ark.—are in the news again. According to an item in the April 25, 1955, SENTINEL-RECORD (Hot Springs National Park, Ark.)

"A forty acre site, located 15 miles west of Hot Springs on Highway 270, believed to contain a valuable deposit of uranium, has been sold by the House of Crystals, Inc., to the Uranium Mangan Company of St. Louis, Mo., Richard Buhlis reported yesterday.

"Buhlis, president of the Arkansas Mineralogical Society, said the Company planned to begin mining explorations within the next 30 days. The property is an old manganese mine which operated near Crystal Springs during World War 1.

"Buhlis said that discovery of the vein came about through accident. The vein, which he estimated at 3 feet in width, was discovered when a "flash flood" uncovered it near the entrance to a mine shaft."

Mrs. Buhlis is the manager of The House of Crystals.

THE NEW HAMPSHIRE GEM MINES

Philip Morrill

In the 1860's Marcus Kelton, a Forty-Niner, returned east from California. He continued to cruise in the country around Grafton, N. H. Among his prospects was Isinglass Hill, now well known as the location of the Ruggles Mine.

In the 1870's he located an outcrop of aquamarine on the far south end of the Springfield Mountain Range. He hired a boy at that time to help him. The boy was Ed Lovering. Mr. Lovering is now ninety years old and has been blind for the past twelve years. He is a remarkable person. He carried in to his shed and piled twelve cords of wood last fall. Mrs. Lovering is only a few years younger while across the road live Mr. and Mrs. Demott, who at 94 years, can look down on the Loverings' bare ninety. Mr. Demott is known for his Demott Mine and Demott Prospect. Due to Mr. Lovering's remarkable memory we were able to piece together the picture of these early workings.

The mine that Kelton and Lovering worked was on the property of the Playter family and is now known by that name. Mr. Lovering held the drill while Mr. Kelton handled the hammer. Between times Mr. Lovering helped at the forge sharpening this steel and was soon able to take over as a mine blacksmith and later foreman. About 750 lbs. of gem aquamarine were packed out by these two miners.

Some years later this mine was reopened as a mica mine and two more openings made west of the original cut. After sometime of mica mining a road was cut in and until that time everything was packed in and out on foot.

Today on remote prospects we must often hand drill to blast. Most of us feel a four foot hole for two men is a good day's work but back when men were men, a minimum twenty-four feet of hole was the requirement. The crew would be two men striking and one man holding. A good man would exceed this amount. Mr. Lovering said he can remember holding all day at an angle on a face so each swing of the hammer, just passed by the side of his head. The striking hammer was each man's prized and personal possession. It was never used to break rock and to find another person using it was call for open warfare. The set, swing and weight all came up for endless discussion.

Before the days of replaceable bits, each mine would require a blacksmith shop. The forge was operated from an immense set of bellows often five or six feet across. This bellows was operated by a long lever with a weight for the return while a small boy was standard equipment to operate the lever. Each stroke sent a blast of air through the fire.

During the mica operation of this mine a new foreman was sent down from Boston. It had been customary to blow the face so as to blast into the cut and little rock was thrown aside. The new foreman set a blast back on the flat ledge. He retired behind a nearby tree. This blast blew straight up and a small boulder came down on the foreman. When the crew got to him he was laying on the ledge with his scalp torn over his eyes and a mass of blood.

A pan of water was quickly placed on the forge and a plug of chewing tobacco boiled to a paste. This paste was then coated over the man's head and he was carried down the mountain. Ten days later he was back on the job.

Several years ago the writer, and Ernest Smith of Lowell, Mass., became interested in the report of these mines. After sometime working around Grafton, we made contact with Mr. Lovering at his home on Prescott Hill. We were cordially received by him and Mrs. Lovering and in the following years spent many hours listening to Mr. Lovering's stories of old time mining. The writer owns with pride Mr. Lovering's striking hammer—a gift.

At this first call Mr. Lovering described in great detail the location of the

mine. Due to his blindness he could not mark it on the map and the country had changed in the years since he lost his sight. We enlisted the help of "Butch"—a twelve-year old neighbor of Mr. Lovering's who roamed the country with his rifle.

We drove south on an abandoned road for about a half mile and continued on foot a couple miles. Reaching a spot that answered the description, we left the road and headed east. This took us over a nice little hill with all the pleasures of slashings, blowdowns and the like. We later found this was Melvin Hill. Deciding we had worked too far south, we returned to the road and tried again.

This time we were probably close to the mine but couldn't see the dumps and so returned and circled around east of Melvin Hill. At this point we saw someone walking down an old trail ahead of us.

A few weeks before we had located a small isolated mine in Westmoreland and while believing we were isolated from others by at least a mile, in walked an old prospector. He had retired and was living a happy life hunting odd shaped and bright colored rocks. So it was quite a coincidence to find him again here in the middle of nowhere.

He had come from the south and had a truck parked there. We accompanied him back to the truck and he took us a mile down the road to a mine he had found that day. This was not the one we were hunting, so he drove us back up hill while we tried to prevent sliding out the rear end of the truck on the steep grades. Butch then saw a porcupine in a tree so we stopped and Butch returned proudly with the nose which is worth a 25c bounty fee.

We walked back to Mr. Lovering and he instructed us again. We went back and after some more trial and error came out on the mine dumps. The sun was nearly set and Butch said, "My pa says when its sunset get for home." While walking across the dump for return a ½" x 1½" green gem xl was found. Butch returned home with a dollar and we took the highway home after about thirty miles of footwork. Last summer a party tried unsuccessful for four days to locate this mine.

The next weekend we returned and surveyed the whole workings. This consisted of three pits on an east-west line. The east pit turns a right angle and heads south. The late Martin Keith always believed gem xls showed up at the junction of two pegmatites and this right angle was probably the intersections of two veins. At least all the aquamarine came from this one spot.

There were thousands of casts in the dump where xls had been removed. The crystals we saw were pale green and pale blue from 1/16" to 1" to ¾" x 3". Casts showed crystals had been found 3" in diameter. They had overlooked very little material.

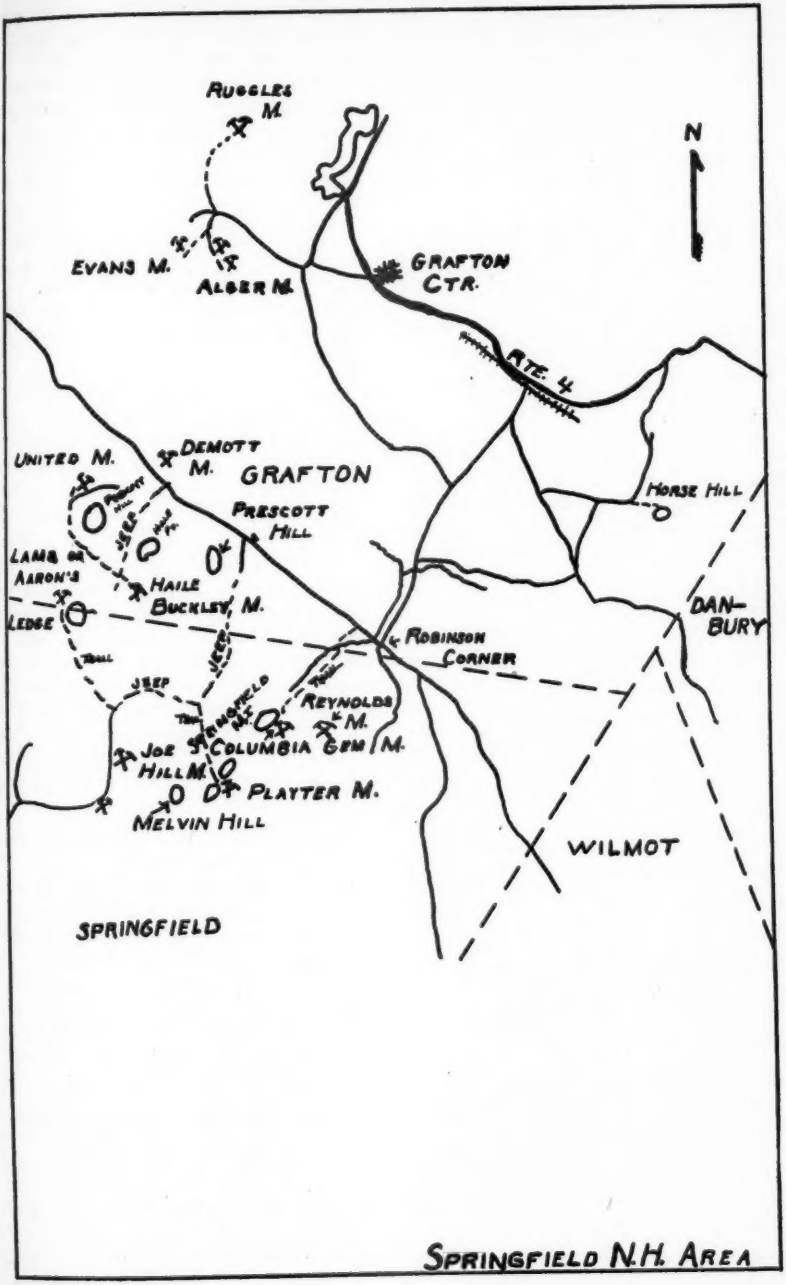
The vein lies between walls of mica schist. Contacting this wall are mica xls and albite xls. Next toward the center is gemmy quartz, black tourmaline xls. and massive spar. The tourmalines are sharp, terminated and brilliant. Spots of nice, clear quartz are common. The "gemmy" quartz so called refers to a peculiar type of granular grey or smoky quartz which looks like coffee gelatine that had been whipped. In this part of the country, this quartz is frequently aquamarine bearing. A sizeable block of this material contacting schist and with xls of tourmaline and spar is a good bet for a gem beryl.

During the years following his work with Marcus Kelton, Mr. Lovering worked for Ed. Passmore of the Passmore Gem Co., Boston.

Among the Kelton prospects was an area on the Reynolds Farm on the northeast corner of Springfield Range. Mr. Lovering worked this area for Mr. Passmore.

We received our instruction on this location and proceeded up a brook and then worked back and forth over the steep side of the mountain. We found one dump and in the next few days spreading out we located most of the others. There is no road to this spot and the dumps are small and scattered.

This mine is peculiar in that an area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REYNOLDS M.
COLUMBIA GEM M.
JOE HILL M.
PLATTER M.
MELVIN HILL
WILMOT
SPRINGFIELD
SPRINGFIELD N.H. AREA

of about one half a square mile has been opened here and there with single shots. There are two small cuts and a small dump where a face was removed from the cliff.

We worked many weekends in this area without finding a scrap of good aquamarine. We finally located the mine shack some distance up the valley. A blast had been exploded inside so the roof was in one place and the four walls laid out flat in four directions. The floor was two layers of two inch plank and had rotted to sawdust. Screening this sawdust brought out the first aqua and it was really blue—confirming the reports. The dumps yielded a few nice colored garnets.

We next scrapped many yards of moss off the ledges but only found one opaque exposure of a beryl xl. This was carefully removed by wedging out the rock two feet in back of it and for a day of the hardest labor we found the "xl" was a ¼" shim and didn't tie onto a transparent end as we had hoped.

When this mine was operating a small pegmatite would be found contacting a mass, sometimes a yard or more, of transparent glass quartz. A hole was drilled in the spar so as to lift out a hole without cracking the quartz contact. The contact was removed entirely by sledges and wedging. It is said a good sneeze will start a crack in an aquamarine crystal. Actually they are under terrific pressure in the solid matrix we have and the release of this pressure starts the cracks. The Brazilian locations find xls in rotted material where the stresses do not occur. The old time saying in N. H. was that the best xls are found loose in the soil.

A little publicity in these mines during operations will result in a horde of curiosity seekers, highgraders, etc. So information on finds is not released and is lost. There is no doubt the whole story of these mines would make history. We can record only fragments.

Mr. Passmore came up in the middle of a winter saying, he needed some fresh air. Ed Lovering in the last moments of the fall before snow had noted a typical pegmatite some distance below the other. A crew of men were hired and an area forty feet across was cleared of two feet of snow which revealed the spot. A shot was put in and under the pegmatite a crystal 4" x 10" was found. The upper half was gem stock.

Another fall in the bitter cold beyond the normal season, the men kept working as money was needed. Mr. Passmore told them one day to free lance and work any place they thought looked good.

Mr. Lovering went below the north cliff and turned over a log to reveal a crystal 3" x 12" loose on the surface. The selling price of $1000 to a European collection contrasts with the publicized $1,500,000 price on the 56 lb. Brazilian xl.

A new foreman was placed on the job and when sledging opened a boulder, a hand sized specimen with three deep red, glass-clear garnets the size of "hens eggs" came out. The foreman said, "I'll take care of that." The next day Mr. Passmore came up from Boston and when he asked for this piece, it developed the foreman presented it for the favor of a local belle. It was never recovered.

Finally, the visible pegmatites were all cleaned up and mining ceased. After this a customer was located by Mr. Passmore for a few tons of the clear quartz that was common to this locality. A sizeable mass was located and blasted out. Under the quartz was an aquamarine xl. Another day was spent in carefully extracting it. It was taken down the mountain in a five pound lard pail into which it snugly fitted.

A few years later a Bureau of Mines engineer married and brought his wife to Grafton for the honeymoon. They spent a week on this property with Mr. Lovering and returned home with some nice aqua. A local family found a crystal so that everyone of them has a good cut stone.

There are undoubtedly magnificent specimens under the hillside but there is no hope of getting them except long trial and error blasting. No one can afford the money this would require with the long chance of making a hit. Should a strike be made, it would only be a single crystal and no continuity to locate others.

After this mine had ceased operation, a compressor was obtained and set on top of Springfield Ridge. Three cuts were made starting at the peak of the ridge and extending west and one cut extending east. This mine was opened and operated for aquamarine only and was called the Columbia Gem Mine. While reports indicate a sizeable haul was made we could not find one cast, beryl xl or any indication, except on the old shack site where opaque golden beryl xls were dug up. A vein of quartz intersects the middle opening and we got two amethyst xls from that but they are too pale to be more than souvenirs.

A grown-over wood road runs from the road near Robinson Corner up the west side of the mountain to this mine. The mine ceased operations in the 1930's and the compressor was pulled over and used at the Wasau Garnet Mine.

Some distance west of this mine Mr. Lovering saw a golden beryl in a ledge. After a long, careful job, this crystal was removed, "As long as your arm and as thick as your wrist" perhaps 3" x 16". This was described as "a deep golden beauty."

We worked this area in all seasons. Early one spring, disregarding well meant advice, we ran our car beyond the pavement we saw it sink into the running boards. We spent all day jacking each wheel and building a stone causeway back to civilization. We saw mild spring weather with the air perfumed and one stops even when picking up a faceting piece to look over the miles of hills and dream.

One July we took turns wielding a twelve pound sledge. If we could have seen the 102 degrees on the thermometer, we would have quit.

One open day the last of November, we were on the north face. The wind blew straight from the North Pole and Mt. Cardigan across the valley didn't slow it down. Every rock would freeze to our gloves. So when the sun set we said—"no more until next spring." A month later we were digging our car out of the snow on the side of Prescott Hill.

This country is rugged, wild and lots of land between the roads. One should not wander off alone. The writer who has crossed and recrossed this area repeatedly, only goes after checking in with local people and even so, we returned after dark one night to find them worried and about to send out a search when we failed to show up.

Warm praise from Advertiser!

Editor R & M

We know you will be happy to learn that no other publication has given us such an excellent return per dollar in advertising as we have received in R&M. This means to us that your readers have the greatest faith in your columns and so it should be because you have a mighty fine publication.

Now that we are going into the Spring season let us hope that more and more people turn to this wonderful geological hobby to gain the benefits of the great out-of-doors. We are doing everything in our power to interest more and more people in rockhounding. We know we are enjoying a great deal of success along this line but the real analysis must wait for the future.

One thing is for sure and that is that the rock club members and other hobbyists can arouse the curiosity and interest of others simply by keeping their local newspapers informed of their meetings, rock trips, and other social activities. By doing this, they not only let their club become better known but they invite participation of those who welcome association with Mother Nature.

D.C. Miller: Editor
National Prospector's Gazette
Bellflower, Calif.

April 7, 1955

A CALIFORNIA FIELD TRIP

By E. L. Banion
3716 Churchill Road, Topeka, Kansas

The past year for our annual vacation which is usually a rock hunting spree we decided on the desert areas of Southern California and because of summer temperature and certain commitments previously made, it was concluded the middle part of November would best fit into these plans.

After arriving in California, short trips or trial runs were made in the vicinity of San Diego, then a trip between TiaJuana and Mexicali in Mexico in which we attempted to locate a recommended gem collecting spot without much success; the route we were given just did not pan out; but we did succeed in finding some huge rough quartz crystals and a few Microcline crystals in a Pegmatite dike at the road side—the dike wandered off into the brush covered hills which offered small opportunity to explore the area, but anyway it is interesting to speculate what may some day be found in the area if closely prospected.

Another trip was made to the Coyote Wells area west of El Centro, Calif., where some poor quality Petrified Wood and Dinosaur Bone was found. Coming down the east side of the mountain on hiway 80 just before reaching the desert west of Coyote Wells, a contact zone was noticed in the granite and metamorphic rocks in a road side cut, which showed promise of possible crystals. The car was parked and immediately huge areas of massive Garnet were found and by combing the steep hillside above a nearby wash, fairly good specimens of float Garnets were found. At this same location much Calcite and what appeared to be a snow white Alabaster, at least an alteration of some Gypsum mineral was found in great masses. Close scrutiny would no doubt turn up other fine specimens from these crystalline rocks.

In the search for Garnets absent mindedly backed into a Cholla cactus which cover the hill side, these painful contacts always leaves you with great respect for these hardy plants.

The high point of the trip to California and one we had been looking foward to for a long time was a trip to the Wiley Wells area in Imperial County, which has the name of being the gem box of the Colorado Desert. The locale is generally the one in which General George Patton trained his tank army for the African campaign.

This gem hunters paradise as you will note later, can best be reached from hiway 60-70 turning south on to a well travelled road on the east side of highway bridge 56-16 which is 31 miles east of Desert Center and 17 miles west of Blythe. These highway bridges are plainly marked on the metal guard wings with a designating symbol which is assigned in ascending numerical order from east to west as 56-17, 56-18, 56-19 etc., therefore by checking these markings the location should be easily found.

To start this trip at the beginning; in company with two newly converted rock hounds, we left San Diego in the wee hours of the morning for El Centro, Brawley, Niland, with the idea (wishful thinking) that we could trim many miles from the trip by taking the desert road north from Niland to intersect the Rannels road in the vicinity of Wiley Wells, however, the slow progress driving in the loose sand caused us to turn back to Niland, where inquiry from local desert drivers convinced us we could perhaps get through but it would be less wear and tear on the nerves and much faster to go around; through Mecca and Desert Center, which we did by skirting the east side of the "Salton Sea" on hiway 111 and 195 to intersect hiway 60-70 near Shavers Summit.

Through Desert Center and the turnoff at bridge 56-18 which was mentioned above and on to the desert road which we will call the "main road"; passing Wiley Wells on the right at 9.1 miles, continuing southward at the cross road and the overhead power line at 9.4 and to the Coon Hollow road which turns left from

the main road at 12.4 continuing on this "road" another 1.8 miles bringing you up out of a wash and on to the desert pavement where the road plays out and where we expected to camp for the night.

At Wiley Wells you enter the gateway to this remarkable gem collecting area which is many square miles in extent. On the north a spur of the Little Chuckawalla Mountains, with the Mule Mountains on the east running south to the Palo Verdes and on the west the Black Hills. This section of the vast Colorado Desert encompasses great masses of Andesite, Rhyolite, immense gravel and boulder beds, ancient lava flows of many ages, red tuffaceous aggregate from which this red desert gets its name.

In these mountains and on the desert pavement adjacent thereto are found most every variety of Agate and the Quartz family of minerals; Chalcedony, Jaspers, Fire Agate, Geodes, Nodules, Thundereggs, Vein Agate, Fortifications. Desert Roses, Quartz and Calcite crystals and a host of other combinations beyond description.

Much of this jewel box is drained by treacherous Milpitas wash which is completely dry during all but rare periods of rain fall and the flash floods which ordinarily occur during the late summer storm season. Each individual canyon of which there are hundreds contribute their flood to this great wash during such times and accounts for the many stream channels that makes the road a series of ups and downs.

Most of the roads in the area are accessible to the average auto with a little judgement in desert driving. A must for any desert driving is spare water for the radiator, spare oil and extra gas and a shovel if you expect to cover the less travelled roads and don't forget a lot of extra water for the driver, because many of the desert "wells" don't mean a thing. The trend in "low down" cars are not good for back road driving anywhere for that matter.

Still recall an experience in the late thirties, when we were lost in the desert between Bagdad and Twentynine Palms, with what we thought was ample water for the car, but some 12 hours, with a great thirst and many blisters on my feet later, discovered how the name tenderfeet really originated.

But getting back to the present trip; we arrived at Coon Hollow camp, (so named by local hounds) with only enough day light to make a short circle into the Desert Rose and Fire Agate beds in the immediate vicinity and to lay in a supply of fire wood of dead Palo Verde and Ironwood trees from the nearby wash and soon a supper of hamburger steaks and potatoes was cooking on the open fire.

Our hurried meal was eaten none to soon - at this time of year darkness decends suddenly on the desert and since it was a good two hours before the full moon would rise, we were dependent on the camp fire for light. Sitting on boulders around the fire we were startled by a shadowy pair of grey foxes that silently drifted into the circle of light from the camp fire, to clean up scraps from the evening meal. They timidly stayed with us until every morsel was cleaned up, then they departed as silently as they had arrived. If there was any fear of man it was not noticeable, or was more likely overcome by the ever pressing pangs of hunger that haunt the desert denizens.

After the foxes had vanished some mention was made that we had not seen or heard a single coyote so far and then shortly the stillness was shattered by a high pitched wail from the near by arroyo and our evening was complete.

As the full moon appeared over Mule Mountains, the pitch blackness of night became long grey shadows; the Palo Verde trees in the washes were transformed into grotesque figures of strange animals. As the moon ascended into the cloudless sky the desert was bathed in a soft light and with the eerie stillness - must be seen to be appreciated.

The desert air was not exactly cold but with our scant covers we were chilly long before morning and wishing for the new day.

Awake and cooking breakfast long before day break, more as an excuse to get up than from hunger, however, with a breakfast of flapjacks, bacon, eggs and

much black strap coffee, we were off to a good start.

In a couple of hours we had our sacks stuffed with Chalcedony Roses, Agate and Jasper from the area; returning to the car we retraced our route back to the main road, then turning south 0.8 mile to a right turn that leads far across Milpitas wash in the dirrection (southwesterly) of the Black Hills and eventually leads to many beds of Agate, Jasper, Carnelian, Geodes, Nodules and the famed Houser Thunder-eggs which are becoming as scarce as hens teeth.

From the right turn mentioned above we travelled 8 miles (seems more like 25) twisting and turning across the stream channels that makes driving very slow and causes the radiator to heat up. Coming up out of the wash on the desert pavement, we fanned out in all directions where many more fine specimens of most of the gem stones are to be found.

Just how good our choice was of much of the material collected must remain a dark secret until we have time to saw some of them up, but from the broken material left scattered over the place by hammer happy rock hounds it will surely not be too bad.

All too soon it was time to start back and bidding hasta la vista to a huge desert tortoise we stumbled into at the last moment we headed the car back across the wash to the main road, Wiley Wells, hiway 60-70 and the return to San Diego to rest up for the next excursion which was promised for the Barstow - Yermo district, the Calicos and the Lavic alluvial Jasper deposits of which we will tell you about at some future time.

Collector's Column

Conducted by A. Cal Lector

This column designed to be a help to beginners in mineralogy began with the September - October 1948 issue. In the last issue we studied Kaolin, this time let us look at Lepidolite, one of the most interesting of the mica minerals and a source of lithium compound.

Lepidolite

The occurrence of Lepidolite is confined to one type of rock - lithium bearing pegmatite. It is usually in masses made up of multitudes of medium to fine grained scales. Crystals, with a sharp hexagonal outline, are rare. Lepidolite is commonly a lavender or lilac color but is also found in gray - green, pale yellow, grayish - white, and occasionally a rose color. It is about 2.5 to 4 in hardness on Moh's scale, depending upon the compactness of the scales. Chemically it is a hydrous fluosilicate of lithium, phosphorus, and aluminum.

Lepidolite is common in the pegmatite areas of Maine. Attractive specimens associated with pink tourmaline are found on Black Mountain near Rumford and well formed crystals have been found at Auburn. At Ohio City, Colorado, coarse crystals form bladed aggregates. Nice specimens are also found at Dixon, New Mexico; Portland, Connecticut; and in San Diego County, California. Quantities are mined in Rhodesia and Southwest Africa. Large sheets, often in beautiful rose color have been noted from Madagascar.

The name Lepidolite is derived from the Greek term meaning scale after an earlier German name alluding to the scaly appearance of specimens from Rozena, Moravia.

Add a specimen or two of Lepidolite to your collection; your favorite dealer will have some.

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—crystalline fl—fluoresces ph—phosphoresces

ALABAMA—The following note was sent in by William M. Johnson, RFD 6, Knoxville, Tenn.

"Just south of the Tennessee River on the northern slopes of the Sand Mountains (De Kalb Co., Ala.) are found bituminous sandstones and limestones. Tar springs in the weathered material sometimes carry tiny drops of yellow petroleum. Some rocks are so highly charged with asphaltum that they burn readily when ignited with a match. A considerable amount of this material has been used for road construction."

ARIZONA—Earl U. Mayer, 1753 "1" St., Yuma, Ariz., donated 3 interesting minerals from the Castle Dome District of Yuma Co., Ariz. The specimens are fluorite (group of small grayish cubes most of which are coated with some grayish earthy mineral and associated with quartz); galena (lustrous cleavage mass with faint purple fluorite cleavage); vanadinite (lustrous, drusy, brownish xls on gray quartz rock).

ARKANSAS—The following item was sent in by Byron C. Marshall, 204 Central Ave., Hot Springs National Park, Ark.

"On August 31, 1928, I went to Bat House Cave, which is located on a small creek, about four miles from the Buffalo River. Bat House Cave is also near the small community of Hasty, about four miles south of Western Grove,in the N.E. section of Newton County. All these are in N. W. Arkansas.

"It happened that I was doing considerable cave exploration in 1928, though I also did a lot more in other years. A Mr. H. Edens then owned the 120 acre farm. Very near this cave are a series of small springs which go by the name of the Pot Springs. These are so called as in the solid limestone bed of the above mentioned creek, and in to which creek the above mentioned springs flow, are a couple of perfectly formed basins. I did not jot down the size of these in my 1928 note book, but they were near the same size, something like 8 or 10 inches in diameter at the top, and about the same depth as best as I can remember. They were very much shaped inside like the inside of an old fashioned iron cooking pot. In other words, a rounding, concave bottom. They were very smooth. The two "pot-holes" were quite close together, about three to six feet, as I remember. Too, they were very close to an off-set of about eight inches, and on the down side of the creek bed, to this off-set. At this season of the year, the creek bed, as well as the "pot-holes", were quite dry. The local native supposition was that these were used by the Indians in prehistoric times to cook in. It is possible that the Indians could have used these depressions thus, during the dry season, but I feel sure that they were not made by the Indians. This, because they were too smooth. I have seen and collected quite a few Indian "mills" or Indian "mill-stones", as they are usually called by collectors. These mill-stones always show considerable signs of pitting, no matter how much they were used after being made. This is because the Indians hollowed them out by knocking out small flakes or pieces at a time, which of course would leave pits. See ROCKS AND MINERALS, January, 1948, for a good article on "POT—HOLES". I feel sure that nature's water and pebble grinding method made these. I have seen small pot-holes a few times in underground cave stream beds. As usually no one had been there to pick out the round smooth pebbles (nature's tumbling method), they

looked much like a bird's nest, eggs and all. I have seen many round holes or openings in caves, from one level or story to another, which undoubtedly had started as a pot-hole, and ground its way through. I offer this as a recording of "pot-holes" for Arkansas. In my many years of observation, all over this State, pot-holes are not plentiful. Sometime, I may record a very large and interesting one from Lawrence County, Arkansas."

CALIFORNIA—Emmett Klopfenstein, Box 162, Greenville, Pa., specializes in barite and has specimens from at least 25 states and 12 foreign countries. He sent us a very fine specimen—a pale brown, fan xled, which fl. yellowish-white under long wave light,

"This specimen comes from the wall of a cave just above high tide mark of the Pacific Ocean, at Palos Verdes (Los Angeles Co.), Calif. This type of barite is the first specimen of collection and forms the basis of my hobby." —letter dated Dec. 18, 1954, from Mr. Klopfenstein.

COLORADO—Large masses of pinkish rhodonite have been found in the Sunnyside mine at Silverton (San Juan Co.), Colo.

CONNECTICUT—Richard Schooner, Box 215, East Hampton, Conn., sent us two items (one on the old lead-silver mine at Canton (Hartford Co.), Conn. and the other on two localities in Middlesex Co., Conn.

The first item, dated March 17, 1955, reads:

"The November-December (1954) issue of ROCKS AND MINERALS contained a reference to some tiny wulfenite crystals which my good friend, Bill Reid, collected at the old Canton silver and lead mine. I recently visited the locality, for the first time, and found some equally small square orange wulfenite crystals implanted on groups of minute green pyromorphite prisms. The latter incrusted a few limonite-stained quartz crystals in one of the numerous cavities of the main pit (above a flooded tunnel). I believe that pyromorphite has been found at only two other places in this state: Brookfield and Bristol. Some yellowish-brown sphalerite was partly altered to what looked like smithsonite and a bit of chrysocolla and perhaps chalcanthite was noted."

The second item, dated April 10, 1955, reads:

"Warren Scotchmer and I drove to Trumbull, yesterday. We didn't find much scheelite, but there was plenty of zoisite. One of the dumps near the old lime Kiln is still full of massive topaz, but it's not attractive material. It could be collected without looking, just by its weight.

"Some strongly radioactive microlite occurs at the Slocum quarry in E. Hampton. A few of the octahedral crystals measure ⅜ of an inch on a side. The locality is again being worked, after a winter lay-off."

DELAWARE—Leonard A. Morgan, 217 S. Atlantic Ave., Haddonfield, N.J., told us not long ago about finding some interesting ammonites (fossils) in soft marl near Delaware City, New Castle Co., Del.

DISTRICT OF COLUMBIA—The following notes, dated Dec. 25, 1954, come from John O. Griesbach, 12217 Centerhill St., Wheaton, Silver Spring, Md.

"In one of the goethite and limonite concretions which I have found on Wheeler Road Bluff overlooking Oxon Run in the S.E. section D.C. I recently made an interesting discovery. The inside was filled with un-cemented fine white sand. (The remainder of the formation is heavily impregnated with carbonate and oxides of iron which stains the sand, gravel, and conglomerate a medium to dark brown.)

"Inside of the concretion in question, in addition to the white sand, were a large number of fossils of twigs or rootlits varying from 1/16 to ¼th inch in diameter. These were nearly like charcoal sticks used in drawing, as they had not been replaced by any mineralizing agent, but simply were the carbon remains after the volatiles had been carried away in solution. One small 1/8th x 3/16th inch fruiting body (seed) was perfectly preserved in the concretion-filling also. Mr. French Morgan very kindly took it to Roland W. Brown, paleobotanist at the Smithsonian Institution for identification for me. Mr. Brown recognized it as a fossil seed of a

variety of the common living hackberry tree, the first to be found in D.C. I have given it to Mr. Brown for the museum as an addition to their study material. I am sending some of the sand filling also with carbonized wood fragments to Mr. Brown for additional study tomorrow.

"In the *walls* of some of the concretions and limonite-goethite geodes are other bits of wood fossil materials which are in part replaced by goethite and which are in part composed of the previously cited "charcoal"-like carbon.

"I have a few 2x2 to 3x4 specimens left of the sections of excellent goethite geodes I have found in the Oxon Run district. The goethite ranges from 1/8" to 1/2" thick as geode linings and is lustrous to iridescent black. Some show minute xls in addition as radiating protuberances on the inner surface of sections. I would rather sell these than trade—in order to purchase rare minerals for my growing Dana and xl collections."

FLORIDA—Howard B. Graves, Jr., 826 S. Ingraham Ave., Lakeland, Fla., has sent in a large assortment of Florida minerals—samples of what he is offering collectors in his unique monthly plan. Among the specimens were: *Siliceous Nodules,* white, brownish and pinkish masses, from the Hawthorne Formation near Floral City, Citrus Co., Fla. These nodules occur in limestone lenses in the lower part of a montmorillonite clay. They consist of a thin layer of translucent chalcedony, a thicker layer of yellow jasper and a center of pink chart.

Common opal, 1/2 inch whitish vein in cellular grayish limestone. Found in the same clay as above nodules.

GEORGIA--There is a tourmaline locality near Avalon in Stephens Co., Ga. The tourmaline occurs in quartz fragments and numerous pieces of coal-black tourmaline can be picked up in the fields around the fire tower near the town.—From Georgia Mineral Newsletter, Summer 1954, p. 91 (Dr. A.S. Furcron, Editor, 425 State Capitol, Atlanta, Ga.).

IDAHO—Last fall while hunting deer in Butte Co., Idaho, Clarence Martin (R3, Blackfoot, Idaho) made a find of some amygdaloidal basalt whose amygdules were filled with gray opaque chalcedony.

ILLINOIS—"I would like to inform you of some geodes found at a location called 'Crystal Glen' near Hamilton, Hancock Co., Ill. The geodes were plentiful both near the creek that runs through the area, and in the Keokuk limestone cliffs along the creek. We found many good geodes including many with good crystals of quartz, calcite, selenite, dolomite, (with saddle shaped xls) and a few with good xls of dark grey sphalerite. Other minerals found in the geodes were limonite, clay, agate and chalcedony. The ones with agate were excellent blue colored geodes of considerable size.

"The geode field was well covered with geodes and included were a few fossils, chert nodules and conglomerate of colorful chert.

"I will send under separate cover a few of the geodes that were found at this location."—Letter dated Sept. 22, 1954 from Kenneth Vaughn, 311-E. Central Blvd., Kewanee, Ill. The following specimens were received:

Dolomite: Dark brown saddle-shaped xls in quartz geode.

Gypsum (*selenite*) Platy gray xls in quartz geode.

Limonite: Earthy, brown mass in quartz geode.

Quartz (*Rock crystal*) Small xls (some brown stained) lining walls of geode.

Quartz (*Geode*). nice one—all lined with rock xls.

Sphalerite: Greenish-yellow cleavable mass in quartz geode.

INDIANA—Siderite was once mined at Eaglesfield in Putnam Co., Ind.

IOWA—F.A. Brown, 976 -25th St., Des Moines 12, Iowa, sends in the following item, dated March 4, 1955.

"Must tell you of another discovery in the vicinity of last July's 'Lepidodendron Forest.' This 14 foot piece of Lepidodendron is said to be twice as great in diameter as the July find of last year. Found 1/4 to 1/2 mile east and in one piece.

"Will write again, I have more information." (See "Find 30-foot fern fossil

on farm near Knoxville, Iowa", by George Shane, R&M, Sept.-Oct. 1954, pp. 477-479).

KANSAS—Small patches of impure reddish hematite occur in Lincoln County, Kansas, near Juniata.

KENTUCKY — Sandstone containing black asphalt has been quarried on Tar Hill, 9 miles northeast of Leitchfield, Grayson Co., Ky.

LOUISIANA—"Under separate cover I am sending you a small specimen I found a few days ago and wish you would tell me what it is.

"I say it is sandstone cemented by white opal, but greater men than I am differ with me and say it is cemented by limonite.

"Found in the northern part of Vernon Parish, La., in Sec. 33-T-4-N-R.10-W. —letter dated Feb. 22, 1955, from Lovett Word, Box 1129, Leesville, La.

The specimen consists of white common opal (some is bluish) as the cementing medium of a fine grained quartz conglomerate (not sandstone) whose pebbles are chiefly smoky quartz (some grayish chalcedony pebbles also present). A little brownish earthy limonite is also present which stains brown some of the opal. It is a unique specimen.

MAINE—A letter received some few months ago from Gunnar Bjareby, 147 Worthington St., Boston 15, Mass., had the following item:

"In looking over micro material collected at Mount Rubellite, Herbron, (Oxford Co.), Maine, many years ago, I found several specimens having the rare mineral goyazite. It occurs well xld in vugs in the lepidolite together with xld herderite and fluorapatite of the so-called Hebron type xl with basal pinakoids and pyramidal faces but without the prism faces. The goyazite from this locality shows the finely pitted surfaces lending a velvety sheen to the xls. This characteristic etching has been observed on goyazite from other New England localities. The color is pinkish-yellow. This species also has been known as hamlinite and bowmanite."

MARYLAND—Nice brownish pebbles of quartz (resembling jasper in appearance) have been found on the beach at Franklin Park on Chesapeake Bay (near Deale), Anne Arundel Co., Md.

MASSACHUSETTS—"I wonder if you still collect locality specimens? I have a real old timer, a small specimen, about 1½ inch x 1 inch, of tiny rubellite xls on microcline from Chesterfield (Hampshire Co.), Mass. This was in the old Stevens Institute of Technology of Hoboken, N.J. collection, and is at least 50 years old. If you care for it, I shall be glad to send it to you."—letter dated Feb. 22, 1955, from John S. Albanese, P.O. Box 221, Union, N. J.

Two specimens were received and both carried the original Stevens Tech. labels. One consisted of tiny reddish xls of rubellite (tourmaline) which were partly gemmy, with dark green tourmaline xls on grayish microcline. The other consisted of dark green striated tourmaline (with pinkish center) in dark smoky quartz and grayish platy albite (cleavelandite). These are very interesting specimens from an old abandoned locality.

H.E. Miller, Hinsdale (Berkshire Co.), Mass., reports finding in that town during the past summer a specimen of diaspore, a mineral unfamiliar to the average collector. Perhaps the best place in the country for this peculiar mineral is another Berkshire County town, Chester, about 20 miles from Hinsdale. These are both towns a little easterly of Pittsfield.

The Hinsdale diaspore has bladed crystals of brown and pale blue, the blue being perhaps an unusual type, as red, yellow, white, greenish, and grey colored crystals have already been mentioned for this aluminum hydroxide.

MICHIGAN—A lustrous lead-grey xline mass of specular hematite, from the iron mines at Republic, Marquette Co., Mich., has been donated by Robert Schenk, R1, Republic, Mich.

MINNESOTA—A correction is to be made for a locality mentioned for petrified wood pebbles which appeared in the Nov.-Dec. 1954 (p. 582) of R&M.

"I'm writing to correct an error as to the location of a specimen I sent you, written up in the Nov.-Dec. issue of ROCKS AND MINERALS: under World News on Mineral Occurrences. It is true that is was found in Sibley Park, Mankato, Blue Earth Co., Minnesota. The error was in the statement that it was found along the Mississippi river. Sibley Park is situated on the banks of the Minnesota river, the Mississippi running along the eastern boundary of Minnesota. If this error was due to my fault, please excuse me. We have so many names starting with "Mi" that I could have easily made the error." —letter dated Feb. 22, 1955, from R.W. Nutting, 3828-43rd Ave. South, Minneapolis, Minn.

MISSISSIPPI—Three miles west of Corinth, Alcorn Co., Miss., are abundant "ball knobs" where large fossils *gryphaca, exogyra,* and others are very abundant on the surface.

MISSOURI—"I am sending you some specimens I collected recently. The brown one is a type of geode termed around here 'rattlebox' as it rattles when shaken. I do not know what the white one is other than a type of claystone; it is hollow when broken. The hematite contains casts of various clams. These specimens are rather common around here."—letter dated Dec. 29, 1954, from Bill P. Cole, 408 Dickinson St., Chillicothe, Mo.

Three specimens from Chillicothe (Livingston Co.), Mo., were received. One was a brown limonite geode (rattlebox), another a white claystone concretion, and the third a dark red fossiliferous hematite.

MONTANA—A dark brownish platy mass of vermiculite from Rainy Creek, Lincoln Co., Mont., was donated by John S. Albanese, P.O. Box 221, Union, N.J.

NEBRASKA—John Boellstorff, Johnson, (Nemaha Co.), Nebr., has been finding some interesting minerals on his farm. one of the minerals found was red agate pebbles—some with thin white bands. These agates should take a nice polish.

NEVADA—Native arsenic, in considerable quantity, has been found in a small mine a few miles south of Pyramid Lake in Washoe Co., Nev.

NEW HAMPSHIRE—Yellow beryl xls have been found in an old quarry on Page Hill in Grafton, Grafton Co., N.H.

NEW JERSEY—A specimen consisting of lustrous brassy-yellow drusy pyrite xls (some large) coating black lignite was given us by E.R De Roo, 130 Kiel Ave., Butler, N.J. The locality for this handsome specimen is the clay pits of Sayreville, Middlesex Co., N.J.

NEW MEXICO—Natrolite, as colorless to white needle-like xls, are found in andesite on the west side of the Valle del Ojo de la Parida, northeast of Socorro, Socorro Co., N. Mex.

NEW YORK—John S. Albanese, P.O. Box 221, Union, N.J., sent in recently two very attractive specimens. One was graphite—lustrous black crystal plates in massive smoky quartz whose locality is Doodletown, Rockland Co., N.Y. The other was spinel (beautiful, little dark green xls) with brownish xline chondrodite on grayish limestone; locality is Gibraltar Rock Area, Edenville, (Orange Co.), N.Y.

From Malone, Franklin Co., N. Y., we have a beautiful dark red granite slab, one face polished, that was donated by Pocono Mineral Shop, 21 Park St., East Stroudsburg, Pa. The label states it is St. Lawrence Red Granite, from Malone, N.Y.

NORTH CAROLINA—Col. Orville M. Hewitt, 6 East Forest Road, Biltmore Forest, Asheville, N.C., sent us recently an attractive specimen consisting of green torbernite with yellow uranophane and both on white feldspar. The locality is the famous McKinney feldspar mine, East Fork Crabtree Creek, Mitchell Co., N.C.

NORTH DAKOTA—Mrs. Paul A. Bens, 1324 So. 1st St., Aberdeen, S.D., sent us a white flat mass of opalized wood that fl. green under the long wave. The specimen comes from the Badlands of North Dakota, near Amidon, Slope Co.

(Please send us some more notes on N.D. minerals, Mrs. Bens.—Editor)

OHIO—A mass of colorless, delicate needle-like xls of epsomite and small groups of dark brown platy xls of marcasite in gray Put-in-Bay Dolomite (also small groups of lustrous bronzy platy xls of marcasite in Tymochtee Shaly Dolomite, have been received from Eugene Kindt, Box 70, Put - in - Bay, Ohio. Put - in-Bay is in Lake Erie on South Bass Island, (Ottawa County).

"I have recently collected specimens of epsomite and marcasite which I am sending to you. I hope that they arrive in good shape.

"The epsomite was taken from a rather large pocket in the Put - in - Bay Dolomite So far as I know, it is the only epsomite found in such a large quantity on the island. It sometimes appears as a thin white crust in the Tymochtee Shaly Dolomite but is extremely hard to collect. The specimen of epsomite that I have collected occurred in Put - in - Bay Dolomite about two feet above the Tymochtee layer.

"The Marcasite occurs in both the Put-in-Bay and Tymochtee Shaly Dolomite. Since the Tymochtee layer is just about even with the water level, the marcasite in it oxidizes quite readily. Some fairly good specimens may be obtained if some of the surface rock is broken away. In both layers the marcasite appears in small quantities scattered throughout the rock" —letter dated March 6, 1955, from Eugene Kindt.

OKLAHOMA—Lustrous black masses of gilsonite occur in veins near Tuskahoma, Pushmataha Co., Okla.

OREGON—"There is an occurrence of augite xls about 16 miles southeast of Kernville, Lincoln Co., Ore. This is on private forest land and 3 miles up on a closed road, so will not give directions on account of summer fire restrictions."—letter dated Dec. 2, 1954, from T.W. Abendroth, 616 S. Kimball St., Caldwell, Idaho.

(Please send us some more notes on Oregon localities, Mr. Abendroth—Editor)

PENNSYLVANIA—"On Sunday, Mr. Floyd Faux (of Bethlehem, Pa.) and I went on a field trip, after which I showed him my mineral collection. In my collection is a nice specimen, about 8 x 10 inches, of dolomite xls with a doubly terminated quartz xl about one inch long lying among the dolomites. When I told him from where it came. I was surprised to learn that he did not know of the location. It might be of interest to mention the locality in your World News on Mineral Occurrences. The xls are found in a road cut on the new Route 22 bypass near the outskirts of Easton, Northampton Co., Pa. I am sending you under separate cover a few small xls to show their quality." —letter dated March 29, 1955, from Wilford Beveridge, 832 Main St., Bethlehem, Penn.

The xls are very nice, whitish in color, but stained brown by limonite.

"The enclosed has been found in a coal stripping at Lattimer which is located 3 miles north of Hazleton, (Luzerne Co.), Pa., off Route 309. There is quite a bit to be found, on the sandstone and in much larger pieces. I've never seen this mineral at any other stripping around here or in any mine or dump." —letter dated April 4, 1955, from Nick Holly, 131 E. Cranberry Ave., W. Hazleton, Pa.

The specimen, 3 x 4 inches in size, consists of slender, highly lustrous silvery-white selenite (gypsum) xls. Some of the xls are radiated. Very, very nice.

RHODE ISLAND—Donald Wrathall, 47 Common St., Providence 8, R.I., sent in a clipping from his local paper, *The Evening Bulletin* of March 11, 1955, which carried an illustrated article titled "R.I. limestone quarry has fed farms 250 yrs." This is the Conklin quarry operated by the Conklin Lime Co. and located off Wilbur Road, Limerock, Lincoln, Providence Co., R.I. The Conklin quarry is noted for bowenite, a massive serpentine of a very fine granular texture—a nice specimen of which was collected by the Editor of R&M when he visited the locality July 22, 1951 and which was described in his article, 'Touring Rhode Island', R&M, Jan.-Feb. 1952, pp. 3-15 (issue all sold out).

"Enclosed is a story on the quarry noted

for bowenite, which is a very pale green and of a fine and smooth texture. It should make fine cutting material. The color would fade from the green of the rough to white if it was cut. A lot of rough material does that as you probably know—deep when rough, pale or nothing at all when cut down to gem size."—letter dated March 28, 1955, from Mr. Wrathall.

SOUTH CAROLINA—Mr. & Mrs. Harold Post, Chesterfield, N.H., called at the offices of R&M, April 21, 1955, while enroute to their home from a winter spent in Florida and left with us 2 loose fossils, wild horse teeth, one was 1½ and the other 2 inches long. The teeth are black, lustrous and were collected on the beach at Myrtle Beach, Horry Co., S.C., by Mr. Post, "just 3 days ago", he told us. These teeth are very scarce, Mr. Post informed us, and if you find one or two you are doing well.

SOUTH DAKOTA—A finely banded, buff and pink compact limestone, one face polished, was donated some few months ago by John P. Connor, Box 522, Armour, S.D. The specimen was found along Elk Creek at Piedmont, Meade Co., S.D.

TENNESSEE—The following letter dated March 16, 1955, comes from Dale M. Ingersoll, 2800 Broad St., Parkersburg, W. Va.

"Thanks to the January - February 1955 issue of ROCKS AND MINERALS and the curiosity of a brother I. Leo, I have at last found the answer to a big question mark in my collection that has gone unanswered for the past 10 years. I found my answer on page 31 under the heading of TENNESSEE. What I really have are "hematite geodes." I have just called them "sand Geodes", for the lack of a better name.

"They must be the same thing because the description you give matches mine completely. I found them back in 1946 while walking up a dry river bed in Jackson, Tennessee which is in Madison County. The old river bed cut through or along a city park on the outskirts of the town, if I remember correctly.

"I broke one of these geodes open by accident and found the colored sand pouring out leaving an empty shell. This caused me to hunt for others since I had never seen anything like it before. I took several of them home and drilled a ½" hole in some of them and extracted the sand which I kept in different little bottles. The sand varied in color from a coarse light brown to a very fine dark red. I have these mounted in a box for exposition purposes but until now could not give much information about them.

"I feel that I have gained my money's worth out of the magazine by having received help on the mentioned items alone.

"I am a new subscriber and this has been my first experience with the magazine, but if I get as much satisfaction and pleasure out of all the other issues as I have this one, you have a steady customer. I am still quite a novice at this hobby."

TEXAS—The following letter, dated Dec. 20, 1954, comes from Byron C. Marshall, 204 Central Avenue, Hot Springs National Park, Arkansas.

"In January of 1954. I obtained five specimens of petrified wood from Mr. A. S. Imell, Sr., of San Antonio, Texas. These are from near Rockdale, Milam Co., east-central Texas. Milam Co. is about 50 miles north-east of Austin. I have checked back in issues of ROCKS AND MINERALS, to and including 1940, and find no recording of woods or flints of any kind for Milam Co., and therefore I feel that this record should be made. I might state by way of interest, that before 1940, recordings in ROCKS AND MINERALS magazine on any kinds of agates, chalcedonies, jaspers, cherts, woods etc., were few. But from 1940 till present, numerous recordings are fortunately given. Hundreds of them for the U.S. I have indexed from Texas alone, (from 1940 up to present), thirty such recordings. There are even more than this, but I have not entered duplications. I might add by way of interest, that four are N. E. Texas, one N. Central, five Central, six S., one N.W., and thirteen S.W. Texas. So?

"Some may wonder why all this fuss about figures. Well, it so happens that the author of this is a fussy guy. He is never quite happy, unless he is fussing about

something. So?

"Well, for some time, the author has been delving into various conditions which confronted and were for the well being of prehistoric man, especially so in these United States. So?

"One of the problems has been the various types of materials which prehistoric man found useful and even necessary to his very existence. Thus, the writer has been collecting records and samples of especially any "flints" which could have been used in making artifacts. So?

"This is the reason I happened to acquire this Texas wood. These five specimens are sawn slabs and one can tell by their discolored and rough extreme outer edges, that they originally were weathered, roundish, nodules, of about two to three and one-half inches. So?

"Yes, these would be the finest of "flint" for the prehistorics to use. You know that these various types of eroded-out "flints" were one of the chief sources of "flint" supply. Such, is found in most states, and in many places, very plentiful. In some cases, not large enough to be of practical use, but in most cases, they were. In this Texas case I am now reporting, these are plenty large. May I add, that Mr. Imell told me that in this locality, also scattered around, is a lot of chert nodules, of sizes up to four or five inches, of some difference in colors and some banded. Of course, the prehistorics could use these too. So?

"I will now take the liberty to briefly describe these petrified woods. Mr. Imell had with him quite a variety of these slabs for where there is much variation of colors involved, of course there can never be two just quite alike. The five selected give a very good range of variation as represented in the lot Mr. Imell had. Mr. Imell had these because of their nice colors, as polishing slabs. Of course, the polishing quality is of secondary interest to me always, the usefullness to the prehistoric, always my primary consideration. But the prehistorics valued color too, and we modern "pebble-polishers" are simply repeating what has been going on for thousands of years. Mostly, these slabs are compact, quite nicely homogeneous substance, though some show pits and vugs and cracks in places. On the whole, quite good polishing material. The colors are real good too. The extremes are milk-white and dark blackish-brown. None are solid color. The blackish one, has reddish and white intermingled. The white slab has bluish and brownish. One slab is a beautiful dark tan, with some light brown mottling and in the center a whitish area. Another, is mostly reddish, but with light tan and whitish mottling. The fifth slab is similar to the fourth, but the colors some darker and with the colors in quite a shredded or moss-like tangle. So. ?

"Hereby hangs a tale. Hope you have enjoyed it."

UTAH—Some few months ago Howard V. Hamilton, 115-E Adams St., Vandergrift, Pa., sent us this note:

"Nodules of brownish algae (seaweeds) occur in the Flagstaff limestone of Lower Eocene or Upper Paleocene age in Hobble Creek Canyon, Utah Co., Utah.

"Limestone with algae nodules are known as Birdseye Marble, but the Hobble Creek Canyon locality is not a quarry—just a locality."

VERMONT—A beautiful slab of black marble, labelled "Radio Black Marble", with one face polished, has been donated by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa. The locality for the specimen is Isle La Motte, Grand Isle Co., Vt.

VIRGINIA—The following item appeared in the March 1955 Mineral Minutes of the Mineralogical Society of the District of Columbia (French Morgan, Editor, 2601 Brentwood Rd., N.E., Washington 18, D.C.).

"Phil Cosminsky reports he has found three new minerals at the quarry south of Centerville, (Fairfax Co.), Va. (the Fairfax trap rock quarry). The minerals were new to quarry and are malachite, azurite and cuprite.

WASHINGTON—Nice specimens of bronzy, gold-bearing pyrrhotite are found in the gold mines of Monte Cristo district, Snohomish Co., Wash.

WEST VIRGINIA—Some nice little rock xls in brown goethite have been found in Bloomery, Hampshire Co., W. Va. by Francis Schiller, Luke, Md.

WISCONSIN—Very fine marcasite, often xled on dark gray dolomite, has been found in the Consumers quarry, Racine, Racine Co., Wisc.

WYOMING—Apple-green chrysoprase (quartz) has been found on the Little Wind River in Fremont Co., Wyo.

BELGIUM—A very fine grained deep black marble slab (Belgian Black Marble), one face polished, has been donated by Pocono Mineral shop, 21 Park St., E. Stroudsburg, Pa. This fine specimen comes from the marble quarries at Mazy, Belgium.

BRAZIL—Another fine specimen donated by Pocono Mineral Shop of E. Stroudsburg, Pa., is a deep black granite slab (Andes Black Granite), one face polished, that comes from the granite quarries at Tijuca, Brazil. This is the first granite we ever saw from Brazil.

CANADA—Our good friend in Toronto, John W. Edwards, 305 Avenue Rd., Toronto 7, Ont., Canada, has sent us word of another remarkable mineral find but unfortunately the exact locality cannot be revealed at this time. It was found recently in the Province of Quebec, Canada. Here is his letter, dated March 19, 1955:

"Many thanks for your letter of March 16th, I was writing to you when it arrived. Once again, I have something very unusual, and, unless I have a photograph taken and send you a copy, you will have great difficulty in believing what I am going to describe—I have sent you a small specimen by separate mail.

"I have just received some fibrous Brucite, more properly called Nemalite (see Dana). The specimens are transparent, and,—most of them, that is—between nine feet six inches and ten feet long. They were coiled-up into a ten inch coil when I received them and when I untied the strings around them, they literally flew-out - straight again, just as though they were made of 'Spring-steel.'

"I am keeping a few xls about two feet long for myself, but, I feel that it would be wrong for me to keep such unusual material, so, I am presenting it to the Royal Ontario Museum, here in Toronto, where it can be displayed for everyone to see.

"At the moment I cannot give you any further information as to locality, because the Gentleman who gave it to me has left for Africa and will be gone for several months. I would like to have his permission to publish anything, in case he, himself, intends to publish an account of its occurrence in one of the Technical Journals, however, you are free to publish what I have written so far, in your News of Mineral Occurrences Column; when I am able to give you more information, I will be pleased to do so."

Last July we received a sand sample from Peter Tarassoff, 667 Gordon Ave., Verdun, Que., Canada. The sand came from Haggert Creek, Mayo District, Yukon Territory, Canada. A letter, dated July 2, 1954, came with the sand but unfortunately both got mislaid on us and so failed to appear earlier in R&M. Here is his letter in full.

"The enclosed sand sample is a semi-concentrate from a placer deposit on Haggert Creek, Mayo District, Yukon Territory, approximately 300 mi. north of Whitehorse. Placer operations have been carried on intermittently along Haggert Creek for the recovery of gold, while in neighbouring Dublin Gulch gold with a substantial amount of scheelite is presently being recovered by sluicing.

"The deposits consist of sand and gravel which may contain much soil and clay. In Dublin Gulch the deposits are stained red and brown due to extensive oxidation of iron. Besides gold and scheelite a number of other minerals are present. A lustrous hard black to reddish hematite commonly occurs from grain to pebble sizes. At one time some hematite was recovered and sold as cutting material to local concerns. The cut stones (some are cassiterite) are sold under the name 'Alaska Black Diamonds'. Cassiterite and hubnerite (wolframite) are also present but not in commercial amounts. They are occasionally

found in pebble size. Other minerals present include pyrite, stibnite, and monazite.

"Scheelite along with other minerals is believed to be derived from the granitic rocks prevalent in the area. A vein carrying cassiterite in possible commercial quantities has been discovered within ½ mi. of the placer deposit in Dublin Gulch. Along Haggert Creek a pyrite-stibnite vein occurs on the property of Mr. Barker. The stibnite occurs in masses associated with massive xline pyrite some of which occurs as lustrous xls. Various oxidation products along with a clay-like gouge are also present. The source of the hematite has not been found, though iron formations have been reported and described northeast of the area. It must be remembered that the country hereabouts is very sparsely inhabited and contains many unexplored areas. Furthermore deposits of commercial value elsewhere are not neccessarily so here because of remoteness and expensive means of transportation."

FRANCE—We have received two beautiful marble slabs, one face polished, which came from marble quarries in France. One, an olive gray slab (Napoleon Grand Melange Marble), is from Boulgne; the other, a pale brownish slab (Escalette Marble), is from Uchentien. Both slabs were donated by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa.

GERMANY—From Peter Th. Arnold, Hansastr. 56, Hamburg, Germany, we have received a very fine uranotile specimen which consists of tiny needle-like yellow xls. with greenish torbernite, reddish quartz xls in black massive fluorite. The locality for this most interesting specimen is Johannesschacht, Wolsenberg, Wolsendorf near Nabburg, Oberphalz, Germany.

HAWAII—A very nice brownish banded mass of travertine (calcite) from the Punchbowl National Cemetery in Honolulu, Oahu, Hawaiian Islands, has been donated to us by John S. Albanese, P.O. Box 221, Union, N.J.

ISRAEL — Three beautiful polished marble slabs, all from Haifa, Israel, have been sent us by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa. Castle Rose Marble is brownish ("rose") colored; Golden Buff Rose Marble is buff colored; Golden Vein Marble is light buff colored.

ITALY—Two beautiful serpentine marble slabs (polished) was another delightful gift sent us by Pocono Mineral Shop of E. Stroudsburg, Pa. One, labelled Red Antique Marble, dark reddish with streaks of white and green, comes from Chiavari, Liguria Italy. The other, Vermyen Serpentine, very dark green, comes from Ivrea, Italy.

KENYA—From Machakos, Kenya, East Africa, we have a very nice grayish columnar mass of tremolite (amphibole) that was donated by John S. Albanese, P.O. Box 221, Union, N.J.

NORWAY—Another beautiful polished marble slab, Norwegian Rose Marble, from Fauske, Norway, has been sent us by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa. This slab is white, with bands of rose and some pale green.

PORTUGAL—Portugal has some nice marbles of which Portanelle Rose Marble, from Lisbon, is a good example. We have a beautiful polished slab, rose colored mottled with brown and gray, that was sent us by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa.

SCOTLAND—Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland, sent us a nice pyrite specimen from Tayvalloch Peninsula, Argyleshire Scotland. The pyrite occurs as a small cube in grayish mica schist (the crystal is dark brown in color as its surface is altering to limonite).

"The xl is small as you can see but I have been told that they are plentiful and easily obtained. Collected by Hugh McCallum, Bairhead."—on label.

SPAIN—A nice reddish-pink cleavable mass of andalusite was sent us by Juan Montal, Plaza Sgdo. Corazon No. 1, Villafranca del Panades, Spain. The locality for the specimen is Montejo, Madrid Province, Spain.

Anadalusite received its name from Andalusia Province in Spain, where it was first found.

SWEDEN—Two beautiful granite slabs each dark red and polished, were donated by Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa. Both came from the granite quarries at Alvesta, Sweden; one was labelled Imperial Red Granite, and the other Sandvick Granite.

URUGUAY—Another beautiful polished granite slab, La Plata Red Granite from Montevideo, Uruguay, was received from Pocono Mineral Shop of E. Stroudsburg, Pa. This slab is red, black and gray in color.

Ultra - Violet Products, Inc., Acquires New Location

Ultra - Violet Products, Inc., manufacturers of MINERALIGHT ultra - -violet lights for prospecting, display, and industrial use, has purchased the Old San Gabriel Winery as a site for its new $500,000 plant, Thomas S. Warren, president, announced.

Ultra - Violet Products, the largest company of its kind in the world, presently is located at 145 Pasadena Avenue, South Pasadena. The completely remodeled San Gabriel plant will provide 50,000 square feet of production and office space for Ultra - Violet Products' 70 employees. The site comprises four acres.

The black light firm will move to its new location, which gives it four times the former production area, in three stages so that its ever - expanding flow of goods to the consumer will in no way be interrupted. In April the sheet - metal operation will be transferred to the San Gabriel site; in May the assembly line will shift, followed by the office staff in June.

The move is necessitated by the rapid increase in demand for ultra - violet lights and associated products. In the new factory, Ultra - Violet Products will step up output of its fluorescent paints, chalks, yarns, papers, fabrics, and inks.

"New uses and increased acceptances for our entire line are almost daily occurrences", John B. Panushka, vice - president and sales manager, reported. "The rate at which sales are multiplying, is gratifying testimony to this fact. We wish to thank everyone responsible for making this shift to larger quarters necessary."

One major contributor to Ultra - Violet Products' increased volume of sales is the frenzied search for scarce minerals which the United States government is spurring with its generous bonus program. For the discovery of an uranium deposit, it will give an extra payment of up to $ 35,000.

The indispensability of the portable MINERALIGHT in this hunt has been proven innumerable times. More than $ 100,000,000 in tungsen alone has been found through use of the MINERALIGHT.

A feature of the new Ultra - Violet Products buildings will be the world's largest display of fluorescent minerals which will cover more than a thousand square feet and be open to the public, free of charge.

Founded in 1932 by Mr. Warren, Ultra-Violet Products manufactures ultra - violet lights for prospecting, mining, oil analysis, sanitation, inspection medical diagnosis, identification, chromatography, theatrical and advertising displays, industrial inspection, air sterilization, check - cashing protection, therapeutic applications, and a multitude of other uses.

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.
640 Alameda Blvd., Coronado, Calif.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

THE TREATMENT OF CLEAVABLE GEMSTONES

The cutting of a gemstone notorious for its ready cleavage is often approached with some fear and misgiving by the average beginner in lapidary work. Oftentimes the rough is not cheap, as for example Kunzite, and the beginner is faced with the problem of how to go about cutting the cleavable stone while the excellent possibility exists that a substantial financial loss will result if something goes wrong. Actually, most cleavable gemstones are rather rugged, often having withstood the blasts of explosives in hard-rock mining or the scarcely less gentle pummeling of some roaring mountain stream if the stone was found in alluvial gravel. Yet this is not to say that all are easy—no indeed, precautions must be taken as a matter of course, the degree depending solely upon the "delicacy" of the mineral in question.

THE NATURE OF CLEAVAGE

If you remember traveling by a cornfield you will recall an excellent example which we can use to illustrate cleavage structure in a gemstone. In the cornfield, all rows are laid out in mathematical precision with spaces between rows and between plants. As you travel by the field and glance along the edge you will note utter confusion at one moment and then suddenly, regularity, as the corn plants line up in a row. You may perhaps have also noticed that at other angles of view other rows line up, perhaps not quite so clearly as in the main rows but still regularly enough to show a straight line at some angle across the main rows.

Do you have this picture clearly in mind? Very well, now consider the distances between the plants within the row and across rows; which were closer together? Perhaps there was a wide spacing between rows or perhaps a wider one between plants. Now if we think of all the individual plants as being connected by a sort of magnetism, which way would it have been easier to split the plants apart? Naturally it would have been long lines in which this magnetism was less. A similar sort of arrangement and magnetism occurs in crystals as well, and for this reason we find that some crystals tend to split apart along certain well-defined planes which are called "cleavage planes", however, they do so only when the "magnetism" between rows is noticeably less in certain directions. If there is no great difference, then the crystal really has no tendency to split apart in any particular direction, it merely breaks or "fractures" instead of "cleaves".

Because of this tendency for certain minerals to cleave in a regular fashion, the surface left behind also tends to be regular, a fact at once apparent to any one who has looked at a sheet of mica with its perfectly smooth cleavage plane clearly exposed to view. However, mica is rather an extreme example of cleavage, most other minerals being far less perfect in their splitting tendencies, a fact which makes them easier to polish than those that do. In addition to the type of surface left by the cleavage, we must consider one more factor which is of great interest to us in cutting,—How easily is the cleavage initiated? If the cleavage is quickly started as in mica or in calcite we can reasonably expect a great deal of trouble in all stages of work. If on the other hand, it is started with considerable difficulty as in the case of topaz, our mechanical problems will be far less.

To summarize:

1. Cleavage is the tendency for certain gemstones to split along well-defined

planes due to their atomic structure.
2. Cleavages may be classed as perfect, excellent, good, imperfect, etc., and also by how difficult they are to form. The latter may be described by some term such as: difficult, easy, very easy, etc.
3. In general, if cleavages are difficult to start, they will cause much less trouble in cutting than those which are easy to start.

CLEAVABLE GEMSTONES

The following gemstones present difficulties in cutting ranging from a little to a great deal:

Name	*Planes*	*Comments*
Topaz	one perfect	Often found in a stream-worn pebbles.
Zircon	one imperfect	Cleavage difficult to start.
Scapolite	one imperfect	Seldom troublesome; in blue and colorless stones manifested by faster grinding in certain directions.
Rutile	two imperfect	Seldom troublesome, especially in clear facet grade. Cabochon material shows faster cutting across the fibers.
Scheelite	one imperfect	These seldom cause splitting but create pits during grinding which take time to remove in polishing.
Feldspars	one perfect	This is not troublesome except in polishing.
Diopside	one good	Facet grade feldspars are seldom troublesome. Cabochon types often split readily along the cleavage plane.
Enstatite	two fair	Cause trouble in polishing.
Euclase	one perfect	Sometimes "feathers" in grinding.
Spodumene	two perfect	Sometimes splits in careless grinding.
Calcite	Three perfect	Pre-forming very difficult without splitting. Cutting best done with lead lap and carbo grit (400).
Rhodochrosite	same	Must be cut on lead lap with loose grit when faceted. Massive types are not troublesome.
Aragonite	same	same
Sphalerite	six perfect	same
Dioptase	three perfect	In spite of number and character, cleavages seldom greatly troublesome in cutting. Polishing extremely difficult.
Kyanite	two perfect	Very easily developed.
Barite	three excellent	Very difficult to grind and cut. Polishing in wrong direction may destroy surface. Very fragile; cleavages very easily developed. The completion of a barite is the "final exam".

It will be noticed that vast majority of gemstones commonly used are absent from the above table. This is because they either do not posess any cleavages or the cleavages are scarcely worth taking into consideration. Jadeite, for example, has an excellent cleavage which can be readily seen in any fresh surface under low magnification. If the individual mineral grains are large the phenomenon of "undercutting" often takes place with resulting pitting of the surface. This is due entirely to cleavage. In jadeite, and other cleavable but massive materials such as calcite, aragonite, smithsonite, rhodochrosite, sodalite, etc., excellent to perfect cleavages do exist, but generally, standard cabochon techniques involving the use of leather polishing buffs, easily, handle the difficulties encountered.

LOCATING THE CLEAVAGE PLANE

When faced with a cleavable mineral, it is highly important that the cleavage plane be located and then borne in mind through all ensuing operations. In this connection, reference to Dana's "Textbook Of Mineralogy" pays rich dividends since most of the important physical characteristics of minerals are set forth in each individual description, particularly the cleavages, and whether they are easy, perfect, and so forth, as well as their location in respect to the crystal. It is unfortunate that some study is needed however, in order to understand just what is meant by the numerical system used to describe crystal faces as well as the location of cleavage planes. Sometimes a crystal diagram is shown with letters on faces and the cleavage described as: Cleavage: m(110) rather easy, to take an example. In simple language, this means that face "m", as shown on the crystal drawing, is the face to which that cleavage is paral lel.

Although study of the Textbook helps a great deal at times, it falls far short of being completely useful, particularly when the rough specimen has no traces on it whatsoever and therefore nothing will serve to match it up with the drawing in the book. In such cases it is necessary to examine the fragment closely for signs of cleavage planes which are almost invariably present in broken bits. The cleavage plane is characterized by great smoothness of the surface, as well as an almost perfect flatness, also, all of the flat places will light up at once when the specimen is turned about under a bright light. If no help is forthcoming from such an examination, it may pay to break off a tiny fragment and then seek signs of cleavage on that.

SAWING AND PREFORMING

Once the cleavage plane has been located, the rough is studied to determine how the largest and most perfect stone can be cut from it but without having *any of the cleavage planes fall exactly upon any facet*. It has been found from practical experience that a facet will seldom polish, no matter how carefully carried out or how long it may be carried on, if it coincides with a cleavage plane.

The next consideration is to determine where the rough should be sawed to separate it into more manageable pieces. Remember however, that any easy cleavage means a weak structure and the greatest possible degree of delicacy must be employed in sawing. The thin, phosphor-bronze Elgin blades will be found to give the most satisfactory results since they are smoother in their action and hence more shock-free. Lubrication must be copious to avoid any trace of heat. In easily cleaved types of gemstones such as kyanite and spodumene, it is always a good idea to saw in from all sides, a little at a time, circumscribing a groove completely around the rough. When this has been done, it may be sawn through with less change of disaster. In very delicate stones the nick made by this operation does not have to be carried all the way through; it is often better to snap off the crystal the rest of the way with the fingers. If several fragments of rough are available, experiment on a piece of no value to get the "feel". Once you have satisfied yourself as to the reaction, go ahead with the piece you intend to finish.

In grinding, the general rule of thumb is to use finer wheels for materials of more sensitive structure, however, the author has found that this is often just the thing NOT to do. It seems that fine

wheels, such as 400 or 600 grit, or even 220, are so smooth on the surface that more abrasive grains are in contact with a gemstone at any one time and hence more frictional heat is generated. It is easily possible to "burn" agate for example, on a very smooth 220 wheel even with a copious supply of water. Mainly for this reason, the author customarily grinds all of his facet rough on the 120 wheel, being quite sure to have the wheel as true as possible beforehand. The 120 wheel has been used for barite, kyanite, and others equally delicate. The use of this wheel is not advocated for *every* facet material but it is worth thinking about in case one crumbles on a finer wheel.

It is during grinding that coincidence of facets with cleavage planes is avoided. It is best to study the rough to fix firmly in mind where the cleavage plane is, then cut the stone down accordingly. Very often a prominent area, obviously suitable for the table facet, is occupied by a cleavage plane. This is a good place to start preforming. Merely tilt the stone against the grinding wheel and cut obliguely across the cleavage plane at an angle of about five degrees, a higher angle is not required. With this as the table facet, grind in all others accordingly .

CUTTING THE FACETS

Generally speaking, delicate stones are cut safely on a 1200 diamond-impregnated copper lap with plenty of water and frequent inspection. If any facet tends to become exceedingly rough or "rip" up, it indicates that a change of grinding direction is called for. Most often a simple swing of the arm to a position about at right angles to the first will do the trick. If facets continue to rip up or cleavages start uncontrollably, it indicates that that facet is very close to a cleavage plane—too close as a matter of fact. In this case it is best to revise the angles you have selected and adopt new ones at least five degrees away in one direction or the other. If this is still not the answer, then it may be necessary to do all cutting on a lead lap impregnated with 400 grit. The grit is rubbed in with a piece of agate and the surplus wiped off. For some reason, this technique seems far more successful in many cases than using the fine diamond cutting lap. For example, spodumene and calcite are two minerals which are handled beautifully on lead but are apt to shatter hopelessly on copper-diamond laps.

POLISHING THE FACETS

Most extremely tender stones do not polish well, if at all, on standard laps. These appear too hard in most cases. Sphalerite and calcite for example, may polish partially on tin but generally the polish imparted is more a "gloss" rather than a true polish. On some facets, Calcite will shatter completely on a tin lap using Linde A, a combination which we are accustomed to think of as unbeatable for many stones. In stubborn cases, wood laps may be used with great success but wood is a great deal of trouble because it loses its dimensional stability by warping. The author has used therefore, a wax lap for most of the truly delicate stones, making the lap from an aluminum disk of 1/4" stock and cementing upon its upper surface a smoothly-ironed piece of linen, secured in place and permeated by ordinary beeswax. The upper side is rubbed down until quite smooth and Linde A powder applied just as with any other lap. Naturally, pressures must be light to avoid gouging the wax while the time devoted to any facet is greatly increased before a perfect polish is attained.

Lapidary Note!

Editor R & M:

Here is an easy way to get stones off dop sticks you might pass on to fellow readers. Chill the stone by pressing it against a frosty spot in the refrigerator or by standing them on the stones in the cube or freezer compartment for a few seconds. The stones will come off by themselves leaving hardly a trace of dop cement.

Harold S. Johansen
C/O Roberts Trailer Ct.
April 11, 1955 Greenfield, Indiana

R & S best Magazine!

Editor R & M:

I was given some of your back numbers and think that you have the best magazine on Rocks & Minerals of all that I have read.

Tom Roach
1312 N. Martel Ave.,
March 29, 1955 Hollywood 46, Calif.

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

Leading with our chin and most used typing finger on each hand we will state that the fad of using baroques or nuggets is more than 4000 years new. Even Sheba found more ancient ones in her own archaeological searching. If is wasn't Sheba herself, then it must have been some other grave robber of her time.

Only one gift shoppee or jeweler in ten knows anything about this new fad in our east. Shop attendants know the pearl baroque. Some few samples we have received and bought are all very highly polished and when shown to shop owners (jewelers and gift shop proprietors) they are appreciated with wide eyes and level brows.

W. S. Shirey, the Nugget Man, of 7927¼ Santa Monica Blvd., Hollywood, California sent us two very lovely samples of golden citrine and amethyst. These are made to sell by the hundred or thousand stones . . . are sold thus to dealers and jewelers for resale.

Mr. Shirey's list includes the more gemmy stones, from aquamarine to beautiful deep blue spinel and the more exotic types of agates and jaspers. If you think you cannot use a hundred stones, remember that ten stones or less to a bracelet and a few necklaces or earrings will use up a hundred stones in one evening of work. Write Mr. Shirey for prices. His Nuggets are top quality.

We are often asked how in the world can you get transformers for the very high intensity EH4 or CH4 and kindred extra strong long wave lamps for the home lamp builder. We have information for anyone interested enough to write us for the data we can supply. Those who are really interested in fluorescence should see this type lamp in operation. All others, and we mean all others, are dim in comparison. If you do not care to make your own, write us for information as to where to buy this extremely brilliant source of long wave U. V.

Ollie (Oliver) Crawford, whose witty column appears in leading newspapers in the U. S., claims the best and biggest fission hole can now be found at Yucca Flats, Nevada.

John and Ruth Krogstad, Pepin, Wisconsin, sent in two batches of very lovely Lake Agates. Mr. Krogstad has been collecting them for more years than he cares to remember and has some very nice ones, quite a few of which are the one-in-a-thousand variety in quality. He invites interested rockhounds in to view them and perhaps make him a deal. We have gotten our tumbling machine going once more and some of these are being given the dizzy treatment.

An issue or two back contains mention of Pecos "Diamonds" which we received from Mr. J. L. Albright (Pecos Minerals, Roswell, N. M.) These quartz crystals were interesting, but you should see the rarer ones now being offered. Seven crystals were sent us to show the rarer and interesting forms and colors of this unique western "Diamond". Several were long and short, doubly terminated (as all Pecos "Diamonds" are) and in fine salmon . . . we repeat . . . salmon colors. Others are dense clove brown and various shades of tan or pinkish tan, all with undamaged terminations. We hope they have more than a few of these types for sale because they will most certainly need quantities to supply the demand from crystal lovers.

Those who might have ¼ inch slabs of fluorescent minerals polished on one side should get in touch with Mr. F. R. Brunner of 410 First Ave., Haddon Heights, N. J. Mr. Brunner is a-building a stone-faced fireplace and will need a few slabs to supplement the ones he is polishing

now. Make a deal with him. He is O.K. and loves minerals.

Charles Johnson of Frankfort, Ky., sent in another sizable portion of Kentucky. This time it was a large piece of aragonite, red and greenish jaspers, chalcedony in odd forms and fossil-bearing rock along with some few calcite concretions, almost egg-shaped. Several ounces of perfectly formed brachiopods were also in the package, and sharply defined in every detail. All specimens are from his neck of the woods in KY. We are going to make a pair of goldleaf burnished earrings with a matched pair.

We can and surely others can attest to the therapeutic values of a good hobby. A few years ago, we heard a now famous surgeon state that all artists are crazy. He also intimated that hobbyists were off the beam, too. WELL. What fun it is to be crazy! All of those agreeing, please say Amen. We know a half dozen very successful surgeons who collect anything from fossils to micromounts and some few who paint (and not with merthiolate) when off the job.

Hatfield Goudey, the top man in Micromounts in the U. S., has sent us a very lovely and perfect specimen of Nevada Libethenite. Yerington is the source, not only of fine Libethenite, but of many other extra fine tiny crystallizations of the exotic types of minerals. Goudey's accessories for the micromounter are well selected boxes, stickers, corks, specimens and downright, down-to-earth enjoyment. His superb specimens sell for 25c to about ten times that amount for the one in a thousand types which can only be found by such an expert. How we would love to see his best 100 mounts. Write him, by all means. Address, Gabbs, Nevada. If you get his list, please take note of Clinoclase, one of the most beautiful crystals for the micromounter in the world.

Glen E. Kiser of the Douglass Tribune, Douglass Kansas, sent in another box of interesting specimens. Thumbnail gypsum crystals and tiny rod-like elongated crystals a clear and well terminated gypsum from very deep down in an oil well in western Kansas. Could be selenites.

Captain George Owens, who has been sending out such reasonably priced slabs, will soon have a new address. He will be moving to California.

The Deakins are in it again. Formerly Coast Gem and Minerals always sold the best types of gem material and accessories. See their ads.

If you really want fine quality assorted colors and types of African Tiger Eye and at the low price usually asked for tumbling grade, yet in a grade far superior to this grade, Minerals Unlimited may still be able to supply. Write 'em.

Once in a while we get a real thrill. John Albanese, who sells some of the finest mineral specimens in the U. S., recently sent us some old time specimens from an old private collection. We received several nice pieces of you-can't-get-them no-more types from the Wheatley Mines area near Phoenixville, Pa., just six or eight miles from our home. This time he sent a very good specimen from a very old collection made when Philadelphia was very young. We do not yet know where the locality was, but this specimen of Heulandite is good. Only a very few pieces have been seen in very ancient collections in Philadelphia . . . the starting place of Mineralogy in this country. What would we do without dealers such as Albanese and others who know how to get wonderful specimens into our hands for such reasonable costs?

Travelers who find their way close to Lordsburg, N.M., should not fail to stop and see the agates and specimens of the Triangle Rock Shop on Hi-way 70 and 80 just 6 miles east of Lordsburg.

C. Richard Redington for over 70 kinds of Uranium minerals before you go prospecting, 975 Detroit St., Denver 6, Colorado. Extra strong ounce specimens for control purposes with your counter are available at $1.00 to $4.00 per ounce. See what you are looking for first, then go out and duplicate a million dollars worth. It has been done just in this way! We are not kidding.

Not too plentiful Lake Agates may be obtained for the tumbler at $1.50 per pound in ten pound lots. This is not a high price for this material. Many nodules will make from three to many more pieces in baroques. Hurlbuts. Muscatine, Lowa.

Dealers who may be forced, in a subtle way, to buy unwanted, slow moving, mineralogical accessories should start looking for a better source if that is what you must do to get certain items which do sell faster and are in demand. We certainly know of such cases of "Modern" business methods and we also know that, like sheep, some dealers are going along with the "Idea" without raising an eyebrow. We have no complaint about establishments hiring special brains to give their manufactured items better distribution but we do complain loudly when we see the "Modern" touch applied to get this added business at the expense of the final distributor . . . the dealer. We could write a whole page concerning the underselling of an expensive item in certain eastern states which this modern method business advocate is doing nothing about. Nuff said.

It warms our heart to see mineral sets in Hi-Way gift shops, even though the proprietors are not especially rockhounds themselves. These are mineral sets in boxes or on cards under cellophane, not always just for the child or beginner. They may show the minerals of the state, exclusively; look nice and are fast sellers. Lincoln Minerals Company, P.O. Box 2112 M.B. Station, Dearborn, Mich., has some nice sets for the serious beginner at $1.00 and $3.00 per set. Gift Shops should contact this firm for a deal.

A topnotch eastern dealer writes us concerning an old lament of ours. He states that very recently he observed many cases of minerals from a very old private collection which has rested and gathered dust UNOPENED and UNINSPECTED for nearly a hundred years. It was not the same old cellar in which we saw the same thing a few years back in a Pennsylvania college . . . but in another very old institution of LEARNING. How much have they learned? How in the world can they resist at least looking them over? Remind us never, but never, to will our specimens to a college unless the college can or will use the specimens for learning and or general exhibit. One live wire college museum in Penna. is making use of many hundreds of pounds of minerals by distributing small pieces to all comers and at cost or nominal price.

If you have identified specimens in batches, good only for sectioning into small pieces and want them to go to a worthy cause (to further the knowledge of mineralogy) send a box or two to the North Museum, Lancaster, Penna. We were not asked to write this request and we are most certainly sticking out our neck to here. We do know that we are going to save all such accumulations of minerals and give them to this modern college Museum which is doing such a swell job in furthering the cause of mineralogy.

If you want to buy baroques, buy only on approval basis. It takes time but it is worth it in the end. Some baroques we have received are good only for slingshots. From time to time, if samples are sent to us, we will keep the reader informed.

Philip S. Danenburg of 4812 Wilem Ave., Baltimore 15, Md., is equipped to supply many mineralogical and lapidary accessories at popular prices. The new improved "Geigerscope" at $5.00 has a thirty power lens and the instrument may be used in daylight. Other less modified instruments are available at $3.00 and $1.00

We have seen Ernest W. Beissinger's cut gem stones. They are beautiful and for the money, have a polish comparable to more expensive stones. They are cut in Idar-Oberstein.

They tell us, those who have sent an order or who have visited the Pocono Mineral Shop in East Stroudsburg, Pa., that they are more than pleased with the slabs mentioned in a previous issue. Thanks for telling us. We know you would like their stuff.

In order to identify his activities in the lapidary and mineral fields, Clayt Hamilton Ardmore, Pa., has issued the following statement:

"Since forming the company known as Lapidabrade, Inc. early in 1954, and assuming office as it's president, I have been actively engaged in the operations of this company.

It may please my old and valued customers to know that I am now in a position to greatly expand the scope of my service to them with greater facilities for research and development in the lapidary field."

FOSSIL DEPARTMENT

Conducted by Howard V. Hamilton
115-B East Adams Ave.
Vandergrift, Pennsylvania

Minerals in Fossils

An excellent article on "The Mineralogy of Fossils" by James H. Benn of the U. S. National Museum appeared in ROCKS AND MINERALS in the January - Feburary, 1955, issue. We wish to add some notes on an unusual mineral - fossil combination reported from Utah.

In the Silver Reef mining district, located in east - central Washington County of southwestern Utah, much of the rich silver ore was found in association with carbonized vegetable remains. Occasional pieces of vegetable matter were found coated with native silver. In the Barbee & Walker mines in the White Reef area, "small bunches of lignite coal, 4 - 10 inches across, were found embedded in the soft sandstone with native silver deposited in thin scales on the joints of the coal". Another interesting item was described; " a tree trunk, 18 inches in diameter was found; the heartwood was silicified and very hard and carried 8 to 10 ounces of silver per ton. The sapwood and bark, 3 to 6 inches in thickness were altered to soft, crumbling lignite, full of silver sulphide; it assayed 5,000 ounces of silver per ton".

The workable ore deposits occurred in "reefs" of sandstone that were exposed by erosion of less resistant shales. They belong to what early geologists called the "Painted Desert formation", now considered part of the Chinle formation of Upper Triassic age.

Description of this occurrence, as quoted above, was found in The Ore Deposits of Utah, Professional Paper 111, published by the United States Geological Survey.

Worm Burrows?

Fine specimens of Arthrophycus alleghaniensis, a curious fossil which even the expert hesitated to classify, may be observed in an abandoned quarry near McKee Gap, Blair County, Pennsylvania. The fossil is considered by some writers to be burrows of chaetopod worms and by other writers to be a trail or burrow of some other animal.

Similar fossils were described as early as 1831, under the name Fucoides, and were considered as plant remains. In 1852 the name was changed to Arthrophycus, possibly by Hall, and called a jointed seaweed. The writer does not know when or how they were first considered to be worm burrows.

The fossil is made up of numerous branching and overlapping rounded ridges ranging from $\frac{3}{8}$ to 1 inch in diameter. The ridges are often marked with a median groove and closely spaced cross lines. They usually lie on what was the bedding plane of the rock formation. At this locality the bedding plane is now nearly perpendicular to the quarry floor. The fossils are found in the Tuscarora quartzite of Lower Silurian age. The layer was named for Tuscarora Mountain, a ridge in Central Pennsylvania made by an outcrop of this formation. It overlies the Juniata formation (Upper Ordovician) and underlies the Clinton formation (well known for the occurrence of oolitic and fossil hematite iron ore).

The quarry is located about one - half mile southeast of McKee Gap and lies in either Blair or Taylor Township in about the center of the Hollidaysburg Quadrangle, Pennsylvania. It is situated on the south end of Short Mountain — one segment in the almost continuous ridge formed by Dunning, Short, Lock and Loop Mountains. This ridge, whose crest is about 1800 to 2200 feet in elevation, runs southwest to northeast across the quadrangle with a large S curve a short distance northeast of the quarry site. This quarry was once operated as a source of gannister rock (quartzite), used for making silica brick.

THE SAND COLLECTOR

CONDUCTED BY PETER ZODAC
PEEKSKILL, N. Y.

River sand from El Dorado Co., Calif.

From the South Fork American River, at Kyburz, El Dorado Co., Calif., we have a sand sample that was sent us by Peter Mohlsick, 2830 Darwin St., Sacramento 21, Calif. This is a coarse, gray sand consisting chiefly of smoky quartz, whitish felspar, and black lustrous biotite. A tiny amount of black magnetite is also present.

Gopher hole sand from Colorado

In 1952 when the conductor of this department was on a trip to Colorado, a stop was made at a gopher hole, 6 miles west of Chivington, Kiowa Co., Colo., to collect a sample of the sand which was in abundance. The hole bordered the right edge of the road (Colo. 96) and the sample was a coarse brown sand, almost all brownish quartz, with some pale pinkish feldspar.

Coral sand from Key West, Fla.

From South Beach in Key West, Monroe Co., Fla., we have a sand sample that was collected for us by Wilbur Smith, Birney Ave., Moosic 7, Pa.

The sample is a grayish, fine grained sand consisting chiefly of rounded grayish coral with some white and pink sea shells.

Key West is America's most southerly city (on Thompson's Island—3½ miles long and 1 mile wide—in the Gulf of Mexico).

Glass Sand from Ottawa, Ill.

Ottawa is in La Salle Co., Ill., and is noted for its glass sand deposits. From the locality we have a sand sample that was sent us by Rev. Carl J. Erickson, 410-8th St., Rockford, Ill. It is a medium grained white sand consisting entirely of nicely rounded colorless quartz.

"Silica sand from Ottawa, Ill. Taken right from the pit of the great Plate Glass Co., there."—on label.

River sand from Council Bluffs, Iowa

Council Bluffs, in Pottawattamie Co., Iowa, is on the east bank of the Missouri River (opposite Omaha, Nebr.). U.S. 6 crosses the river here, connecting the two cities, and at the Iowa end of the bridge a sand sample was collected by the conductor of this department on July 2, 1952. The sample was a very fine grained gray sand consisting chiefly of quartz (colorless, smoky, brownish) with black biotite, silvery muscovite, and a tiny amount of black magnetite.

Quartz sand from St. John, Kans.

This is a medium grained brown sand consisting entirely of brown quartz (quartz stained brown by limonite). It comes from Hiway 281, six miles south of St. John, Stafford Co., Kans., and was collected for us by Glen E. Kiser, Douglass, Kans.

Two cave sands from Kentucky

"Since writing you last fall and sending you the sand sample, I have changed my mind concerning the collecting of sand. Once I got started on it I find it is lots of fun. The only problem is that there are so many varieties of it. And those little vials for my permanent collection are so expensive. So right now I am just concentrating on collecting cave sands.

"I am enclosing a couple of them now. Both these caves are near Mammoth Cave National Park which I visited last year. Could you analyze them and send me the results? I promised the manager of Diamond Caverns I would let him know what his sand is composed of. "—letter dated

March 16, 1955, from Lynn Langhorst, Valmeyer, ILL.

The sand from Diamond Caverns (in Barren Co., Ky.), is a medium grained brownish sand consisting entirely of quartz (chiefly brownish, some smoky).

The other sand is from Mammoth Onyx Cave (in Hart Co., Ky.), and it is a medium grained dark gray sand consisting of smoky quartz and dark gray clay, in about equal proportions.

Beach sand from Franklin Park, Md.

Franklin Park is on Chesapeake Bay, near Deale, Anne Arundel Co., Md. From the beach in the little town the conductor of this department has a sand sample which he collected on Jan. 13, 1952. This is a fine grained gray sand consisting entirely of quartz (clear, smoky, brownish, milky).

Limonite sand from Salisbury, N. Y.

"Am sending a packet of sand found in Cold Creek, north of Salisbury (Herkimer Co., N. Y.), which my son, Jr., picked up while fishing. He said there was only one spot where this rust-colored sand ran from under a bank".—letter recieved a few months ago from Peter Krump, Salisbury Center, N. Y.

The sample is a dark brown medium grained sand. It consists chiefly of dark brown limonite and smoky quartz (most of the quartz grains are coated with limonite). A small amount of black magnetite with most of the grains coated brown by limonite is also present.

Quartz sand from Magnolia, N. C.

In Magnolia, Duplin Co., N.C., Cottage Grill is located on the west side of U. S. 117. On July 6, 1954, while on a trip to Florida, the conductor of this department stopped for lunch at Cottage Grill which was situated in a very sandy area (the sand was flush with the ground). A sample of the sand was collected which was a medium grained dark gray sand consisting entirely of quartz (colorless and smoky).

Quartz sand from Meeker, Okla.

This is a medium grained brownish-red sand consisting entirely of quartz (almost all brownish-red, some colorless), and was sent in by Glen E. Kiser, Douglass, Kans.

"From road cut on Highway 18, two miles north of Meeker (Lincoln Co.), Okla."—on label.

Beach sand from Folly Beach, S. C.

Folly Beach is on a little island in the Atlantic Ocean (in Charleston Co., S. C.). From the beach we have two sand samples and it may be interesting to see how they compare. The first was sent in by Rev. Wm. J. Frazer, Moosic 7, Pa. This is a fine grained gray sand consisting chiefly of colorless quartz. Tiny amounts of green epidote, red garnet, and black hornblende are also present.

The other sample was sent in by Hobson Arnold, 783 Essie Ave. S. E., Atlanta, Ga. This is a very fine grained dark gray sand. It consists of colorless quartz, green epidote, dark red garnet, black ilmenite, black magnetite, and some colorless zircon that fl.orange under the Mineralight.

River Sand from Nashville, Tenn.

"What a delightful, friendly little magazine is ROCKS AND MINERALS! It is so relaxing and yet thrills with excitement and adventure. I never read any magazine like it.

"I am sending you a sample of Cumberland River sand from Nashville (Davidson Co.), Tenn. I am very much interested in minerals and sands and think fossils are very fascinating. "—letter dated March 31, 1955, from Juliette Desport, 1229 17th Ave. So., Nashville, Tenn.

This is a coarse, brown sand consisting entirely of quartz (smoky, colorless, brownish, and brown chert).

Limonite sand from Bowie, Texas.

"You may be interested in the sand enclosed. It is found inside of round and oval shaped rusty-looking rocks here in Bowie (Montague Co., Texas). Can you let me know of what the sand is composed? "—letter dated Aug. 30, 1954, from Terrell Nichols, Box 125, Bowie, Texas.

The sample is a medium grained brown sand consisting of brown limonite and brown quartz (the color of the quartz is due to the limonite).

Gold-bearing sand from Ellensburg, Wash.

C.R. Davis, 9001 Mill Plain Road, Vancouver, Wash., sent us an interest-

ing gold-bearing sand from his state. It is a fine grained reddish-black sand consisting chiefly of black lustrous magnetite, pink to red gemmy garnet, smoky quartz, and colorless zircon that fl.orange under the Mineralight. A small amount of greenish epidote and yellow gold are also present. "From Swauk Creek near Ellensburg (Kittitas Co.), Wash."— on label

Garnet sand from Harts Range, Australia

Harts Range is in Central Australia and from the area we have a sand sample that was sent us by S. J. Squires, 61 Hawthorn Rd., Brisbane, Australia.

The sample is a medium grained dark red sand consisting chiefly of pink to reddish garnet with minor amounts of black biotite, colorless feldspar, black magnetite, whitish to bronzy muscovite, and quartz (colorless, smoky, brownish).

Lake sand from York Lake, Canada.

"This sand comes from York Lake which is 4 miles south of Yorkton, Saskatchewan, Canada. "—letter dated April 6, 1955, from Jack M. Park, 148—2nd Ave., Yorkton, Sask., Canada.

The sample is a medium grained grey sand. It consists chiefly of quartz (colorless, smoky, and very dark smoky.), and feldspar (white, pink), with minor amounts of pink garnet, black magnetite, silvery muscovite, and gray limestone.

Dune sand from Elephant Lake, Canada.

Some few months ago we received a sample of dune sand from E. J. Talamini, 164 Chestnut St., Kearny, N.J., which he collected for us from the dunes at Elephant Lake, on Wilberforce Road, Ont., Canada.

The sample is a fine grained gray sand and consists of colorless to smoky quartz, gray to pinkish feldspar, black biotite, green epidote, pink garnet, black magnetite, silvery muscovite, and black tourmaline.

Monazite sand from Colombo, Ceylon

Fritz G. H. Carlson, 12 Beach St, Fairhaven, Mass., sent in recently a sand sample which comes from a beach around Colombo, Ceylon (Ceylon is an island in the Indian Ocean).

The sample is a very fine grained brownish sand consisting entirely of brownish monazite.

Beach sand from Teighnmouth, England.

Teighnmouth is on the English Channel and at the mouth of the Teighn River, in Devon, England. From the beach on the English Channel we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland.

The sample is a coarse grained red sand consisting chiefly of red sandstone with smaller amounts of quartz (colorless, gray, reddish), and sea shells (white, brownish).

"Beach sand from the bay at the mouth of the river—this is a holiday resort. Teighnmouth, Devon England. Collected by John Coulter. "—on label.

Beach sand from Bandol, France

Bandol, Var, France, is on the Mediterranean Sea. From the beach at Bandol we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., King Park, Glasgow S4, Scotland.

The sample is a coarse, brown sand. It consists chiefly of quartz (smoky, brown, colorless, white, red) with a tiny amount of black magnetite, and a considerable amount of sea shells (white, pink) which fl.brown under the long wave.

Beach sand from Patras, Greece

"The beach sand from the port of Patras (on the Gulf of Patras), Greece, is somewhat contaminated with bits of tar, iron, etc. because of nearness to the city of the area where I picked it up. Under the Spinthariscope a few grains show radio activity—tho I made the test on a larger quantity than is included in this sample. "—letter dated Feb. 18, 1955, from Walter Mc Namara, 7 Harmony St., Danbury, Conn. (letter written at sea, enroute to Newport News, Va., from Greece).

The sample is a medium grained dark brown sand. It consists chiefly of quartz (colorless, brownish, reddish, gray also red chalcedony) and sea shells (white, brown red—some are whole shells). A tiny amount of grayish limestone and rusty bits of iron (coated with tar) also pre-

sent. No radioactivity noted in the sample sent us.

Beach sand from Viareggio, Italy

Viareggio (Tuscany, Italy) is a popular bathing resort on the Mediterranean Sea. From its beach we have a sand sample that was sent us by Glen E. Kiser, Douglass, Kans.

The sample is a fine grained gray sand consisting chiefly of quartz (smoky, brownish, colorless, milky) with silvery muscovite, reddish garnet, and black magnetite.

"Viareggio (Italian Riviera), near Livorno (Leghorn) on the Mediterranean Sea"—on label.

River sand from Taxco, Mexico

"I am enclosing a sample of river sand collected from El Rio Chorrillo which runs through Taxco, Guerrero" —letter dated Jan. 31, 1955, from Warren R. Jones, Plazuela de Barnal 2, Taxco, Gro., Mexico.

The sample is a coarse grained brownish sand. It consists chiefly of reddish rhyolite with minor amounts of smoky quartz, glassy colorless sanidine which has a bluish opalescence, and a very small amount of black magnetite.

Lake sand from Lake Taupo, New Zealand

"Taupo Lake, situated in the central part of North Island, is the largest lake in New Zealand, about 25 miles long, and 16 miles wide, with an area of 238 sq. miles. The water is very pure, is up at an altitude of about 1,200 feet, and is noted for trout fishing." —item sent in with a sand sample by Miss Winifred H. Arnold, 2020 Magnolia Ave., Long Beach 6, Calif.

The sample is a fine grained gray sand consisting chiefly of colorless quartz (tiny rock xls many of which show faces), black magnetite, and greenish epidote—some magnetite is attached to the epidote.

"From Lake Taupo at city of Taupo, North Island, New Zealand, 1952." —on label.

Feldspar sand from Shetland Islands, Scotland

"My sand collection now has reached 2976 of which 848 are from foreign countries. Enclosed is a sample from West Skios, Ronas Voe, Mainland Island, Shetland Islands.

"I have sands from 18 of the Shetland Islands and 22 samples from different beaches on the Mainland Island. All very different.

"I expect to make the 3000 mark on my 82nd birthday, April 9th, as I have only 24 more samples to get." —letter dated Feb. 26, 1955, from Chas. R. Lamb, Long Beach, Wash.

The sample is a dark reddish medium grained sand consisting chiefly of reddish feldspar with small amounts of smoky quartz and smaller amounts of black biotite, black hornblend, and black magnetite.

Shell sand from Deerness, Orkney Islands, Scotland

The main island of the Orkneys is called Mainland (the main island of the Shetlands is called Mainland also). From Deerness, the easternmost part of Mainland (on the North Sea) we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland.

The sample is a dark gray fine grained sand consisting almost entirely of sea shells (white, blue, brown) with a tiny amount of colorless quartz, Some white shells are opalescent but none are fl.

Zircon sand from Melmoth, Zululand, So. Africa

F. C. M. Bawden, P. O. Box 1167, and Mrs. I. N. Gush, P. O. Box 1128, both of Johannesburg, South Africa, have donated 19 different sands which they personally collected and sent us in one box. One of the samples is from Melmoth, Zululand, South Africa.

The sample is a brownish, medium grained sand consisting of brownish zircon xls which fl.orange under the Mineralight, with black magnetite, colorless quartz, colorless feldspar, silvery muscovite, and black biotite.

"Zircon concentrates taken from gorge of the Umhlatuzi River, Melmoth, Zululand—taken from schist belt." —on label.

Beach sand from Alicante, Spain

Alicante, in Alicante Province, Spain, is on the Mediterranean Sea. From the

beach in the city we have a sand sample that was collected for us (Feb. 9, 1955) by Walter McNamara, 7 Harmony St., Danbury, Conn., while returning from a trip to Greece.

The sample is a fine grained gray sand consisting almost entirely of sea shells (white, brown, yellow). A little colorless quartz and a tiny amount of black magnetite also present.

Beach sand from St. Brides Bay, Wales

St. Brides Bay indents the west coast of Pembroke County, of southwestern Wales. From a beach on St. Brides Bay we have a sand sample that was collected for us some few months ago by P.D. Boerner Dept. of Works, Alice Springs N. T., Central Australia. In 1953 Mr. & Mrs. Boerner were touring the British Islands, and collecting minerals at the same time—the above sample was one of many sent us.

The sample is a fine grained dark brown sand consisting chiefly of sea shells (brown, white, etc.) with colorless quartz and some silvery muscovite. It is the preponderance of the brown sea shells which gives the sand its color.

"Collected at New Gale Inn, St. Brides Bay, Wales." —on label.

SPRING FEVER

From my high, skyscraper window,
I can see a patch of sky,
And the spirit rises in me
As the white clouds scamper by.

Spring is here — I've got the fever,
I am tired of jangling phones—
There is hematite in my blood stream,
And there's calcite in my bones.

Spring is here — And nature beckons,
Yet here I sit, from morn till night—
When I'd rather be out digging
Spodumene, or pectolite.

It's a downright waste of money,
When your tools all oxidize—
Furthermore, I'm getting restless,
And I need the exercise.

I don't care just where I prospect,
Be it dump, or quarry wall—
All I want is time to wander,
And to dig — until next fall.

C. C. W.

ROCK PULPIT

When I was but a youngster I attended
Sunday School,
And took up Bible Study and learned
the Golden Rule.
But the story of Creation was never very
plain
Until I hunted minerals in a quarry
down in Maine.

I was digging in a mine dump and was
hammering on a rock,
When I opened up a pocket and received an awesome shock.
Before my eyes, in shimmering light,
within the cavity.....
Was a beautiful quartz crystal, as perfect as could be.

I knew no man had ever seen this chunk
of rock before;
I knew no mortal mind conceived the
jewel I pondered o're.
And as I knelt on bended knee I said
this thought aloud,
"Surely this proves, beyond a
doubt, there really is a God."

F. E. Schiller
Luke, Md.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

MINERALOGICAL SOCIETY OF PENNSYLVANIA

Kodachrome Round up.

On January 16th, 75 members and friends of M. S. P. met at the home of Doctors Douglas and Ellen Davidson at Claymont, Delaware to view 149 slides of the club's year's activities. The exhibiting potographers were: Ken Fisher, Len Morgan, David Dear, Bill Hunt, Paul Seel, Douglas Davidson, Frank Lord, Harry Ranck, Howard and Bob Ennis.

Adding to the show, Paul Seel showed 125 superb slides of Navajo land in Arizona and a movie of a volcano in action.

It was a wonderfully friendly time and the Davidsons extended an invitation for next year.

Field Trips.

On February 6th, in a pouring rain, 100 members and friends of M.S.P. met in the Wagner Free Institute of Science, 17th and Montgomery Avenue, Philadelphia, Pennsylvania, to hear a talk on Pennsylvania Geology and Mineral Resources by Dr. Carlyle Gray, acting director of the Bureau of Topographic and Geologic Survey, Harrisburg.

He covered the subject in an easy comprehensive way, well illustrated with slides ably projected by Paul Seel.

He gave many interesting facts, among them: Almost an anticlimax, because of the weather that day, was the fact that most of Pennsylvania was covered with water in Precambrian Times. Coal is one of our most important mineral resources with a 350 year supply left. The area of a gas field is determined by a ring of dry wells surrounding it. The Zinc of the Friedensville Mines is a replacement in Ordivician dolomite.

Copper is a by-product at Cornwall and is in the Triassic Veins of Phoenixville. The Sandstone of Pennsylvania is used in refractories and banded with clay makes a fine brick. Building stone is scarce in the State.

Following Dr. Gray's interesting talk the group visited the Museum's outstanding earth Science Exhibits.

This is a place to visit often. Appointments to do so may be made through the office.

March Field Trip

On Sunday, March 6th, in a torrential downpour which lately seems to be the usual weather for an M.S.P. outing, 150 members and friends met on the premises of the Foote Mineral Company at Exton, Pennsylvania.

Member, Dr. Fred Stenbuck, President of the New York Mineralogical Society and his charming wife, Belle, expressed amazement at seeing so many out in such foul weather.

We were shown through the plant in groups of 50 with courteous guides patiently answering all our questions. First, we visited the Ball Mill, a room containing large cylanders filled with steel balls and then the Rod Mill, the same set-up except that steel rods replaced the balls, both mills being used to grind the mineral material. From here our guide took us out to the stockpiles where the pouring rain revealed the beauty of the minerals to which we were to help ourselves.

All one could carry, was the rule, and our loot consisted of Lepidolite from Southwest Africa, the rare Petolite from Southern Rhodesia, Amblygonite from Africa, Fluorite from France and Mexico, Ebony Manganese from Africa and India and Chromite from Africa and Australia.

Around the Rockpiles it was heard to be true, that, being crazy is not a requisite to collecting minerals, but it helps.

Soaked to the skin and hungry we trooped back into the company cafeteria where our hosts served hot coffee, cakes and cookies.

The Foote story shows the development of a hobby into a present day multi-million dollar industry.

It can truly be said that Foote has taken minerals out of museum show cases and put them to work in industry.

Progress and Accomplishments

An entire edition of 500 copies of Samuel Gordon's MINERALOGY *of* PENNSYLVANIA recently re-issued by the Mineralogical Society of Pennsylvania has been sold out.

The series of Geologic Articles on Pennsylvania by member, Richmond E. Myers in the Bethlehem GLOBE TIMES has stirred up a great deal of interest in Pennsylvania Geology. Dr. Myers is at present a member of the Geology Department of Lehigh University.

Leighton and Bobby Donley of Cornwall, Pennsylvania, father and son team, were the subjects of two very interesting newspaper articles, concerning their fine Cornwall collections, one in the Lebanon DAILY NEWS and the Lancaster SUNDAY NEWS.

Member, Wesley Crozier of Fair Haven, New Jersey, has been elected president of the newly organized Monmouth County Mineral and Gem Society. Member, Will Shulman was honored as the initial lecturer and presented the topic, Twenty-Seven Years of Fun Collecting Minerals.

Member, David Dear was the recipient of a cash award for having the most educational and second most interesting exhibit at a recent Bell Telephone Hobby Show held at Philadelphia's Town Hall. In addition to the usual run of crystals and other beautiful minerals he had a section showing strategic ore minerals and an illuminated map showing nearby localities where beginners could easily find specimens. There was also a small darkroom rigged to display fluorescent minerals and a small lecture on fluorescence.

Member, Will Beveridge of Bethlehem, appeared before the Lehigh Valley Chapter of the Pennsylvania Craftsman's Guild in February, presenting a two hour demonstration and talk on the Lapidary art. On the night of March 15th he was a guest on Bethlehem, Pennsylvania Television Station WFMZ (Channel 67) UHF. He was given twenty minutes on the 7 to 9 Variety Show and after a brief interview with the Master of Ceremonies demonstrated cabachon polishing on his stonemaster unit. He has been flooded with mail and inquiries since then.

The open letter on safety sent to the membership via the KEYSTONE NEWSLETTER published in Rocks and Minerals and Gems and Minerals has recently, with special permission, been adopted by the Rochester Mineral Club as a frontispiece for their new list of mineral localities of New York State.

IN REMEMBRANCE

On December 30th, 1954, Golden Age Member Charles H. Priestly of R.D.#1, Mt. Ephraim, New Jersey, departed this earth. Everyone will remember Charley who despite his advanced years swung a mean sledge hammer, always found the good specimens and hitch hiked from his New Jersey home to all our field trips.

After a long illness, John Kuppinger, 6511 No. 9th Street, Philadelphia, passed away on January 26th, 1955. His presence at all M.S.P. affairs will be greatly missed as he was an "All Round Rockhound." He was the author of M.S.P's handbook on Fluorescent Minerals and was an authority on black lights and Minerals. Sympathy is extended to his wife and family.

Gerry & Will Shulman, Co-Chairmen
Publicity Committee,
113 Huntington Terrace
Newark 8, N.J.

The Lapidary and Gem Society of New York

MINUTES OF FEBRUARY 24, 1955

The meeting was called to order by our president Mr. Schweitzer at 8:30 P.M. The minutes were read and accepted.

The president explained that the B & I machine was set up and available for use. It will probably be demonstrated for about a half hour before each meeting. Those who are interested please come early.

Doctor O'Connell of City College was introduced to the club. He was given a warm greeting when it was announced that he introduced the lapidary course in City College.

Doctor Frederick Stenbuck was introduced. He spoke about collecting minerals and gems in the West. He took us through many Western localities, showing beautiful slides. He brought for display many beautiful specimens of minerals and beautiful finished gems that he had obtained in his travels.

He took us through Yellowstone National Park with its geysers and volcanic eruptions. He showed beautiful slides of his trip from Durango to Silverton on a freight and passenger train going about 15 miles an hour. The train is used mostly for transportation of ore. He showed slides of the beautiful hills of Silverton which were pitted with mine holes all over the country side. Silver and lead are obtained there.

From there we took our magic carpet to Amelia Court House in Virginia for Amazonite. From there we flew to Walla Walla, Wash., for Columbia River Agates that are found on sand bars in the Columbia River. To Crater Lake below San Francisco to Morgan Hill for beautiful Jasper down to Monterey for Jade, down highway 49 along the Gold Coast.

We flew to the desert in Death Valley for chalcedony to Bisbee, Arizona, for malachite, azurite, and copper minerals.

We took the biggest state of the union, Texas, in a short hop, shopping for chalcedony along the Rio Grande River. We finished off by digging for diamonds in Murfreesboro, Arkansas.

The meeting was adjoined at 10:15 with a rising vote of thanks to Dr. Stenbuck for the interesting, informative and fascinating talk he gave about his Western travels. The members again went to the front table to see the beautiful gems that Dr. Stenbuck had collected.

Louis Soland, Secretary
1250 Morris Avenue
Bronx 56, New York

Rockland County Mineral and Gem Society Spring Valley, New York

Twenty members, wives and friends of the Rockland County Mineral & Gem Society enjoyed a very fine field trip on Saturday, April 9, 1955, to our neighboring state of New Jersey. We were guided by Mr. Russ DeRoo of Butler, N.J., which was very much appreciaed by those who were fortunate enough to take this field trip, for without Mr. DeRoo we could never have found these out-of-the-way places, all of them in the Raritan River section.

We met at Spring Valley at 7:30 A.M. picking up Mr. DeRoo at his home where we stopped over to enjoy his wonderful collection of mineral specimens. We then went on to Logansville, N.J., to the Logansville Pottery Co.,

who make flower pots from the deposits of clay on their property, where we found clay concretions. There does not seem any explanation for the symetrical designs which nature has fashioned and hardened in clay, the concretions look as though they have been stamped out by a modern die-casting machine.

We travelled on a few miles to Sterlingbrook, N.J., and had our picnic lunch at the Countryside Inn, afterwhich we proceeded to Sayresville, N.J., to another clay quarry along the Raritan River where we found some of the most beautiful specimens of pyrite balls. We actually wallowed in clay to find them, but forewarned is forearmed as we were all well-equipped with rubber boots.

The fourth and last stop was at the Such Clay Co., Parlin, N.J. where we again found pyrite balls, marcasite and lignite. Lignite is an ancient wood which is decomposed nearly to the coal stage having been buried in clay for thousands of years, the pyrite and marcasite is formed around this wood. When these specimens are washed free from clay they are very spectacular.

This field trip was so rewarding that the members who attended expressed a desire to repeat it at a later date, especially for those who were unable to attend.

Anybody wishing to see this club's efforts can do so by visiting our mineral exhibit at the Peoples' Bank at New City, N.Y. We are now preparing an exhibit for the Orange & Rockland County Fair at Middletown, N.Y., to be held in August, also for the coming Eastern Federation of Mineralogical & Lapidary Societies convention to be held in Washington, D.C., at the end of September.

The public is invited to all of our meetings which are held on the last Friday of each month at the Finkelstein Library, Spring Valley, N.Y., at 8:00 P.M. For further information call the secretary at Nyack 7-3439.

Mrs. Marguerite R. Collyer
Corr. Sec.
West Nyack, New York

Newark Mineralogical Society

Mr David Staeger, who is in charge of the mineral exhibits at the Newark Museum, was the speaker at the February meeting of the Newark Mineralogical Society. He spoke on the photography of mineral specimens—micromounts in particular, and his talk was illustrated with kodachromes of his work. It was a fascinating experience to see the beauty of the specimens shown, and especially the detail of the tiny specimens, portrayed through the means of micro-photography.

"Early Copper Mining in New Jersey" was the subject planned by Mr. Carl R. Schroeder, our Program Director, for the March meeting. Mr. S. Skrowronski, Research Engineer with the Raritan Copper Works of the International Smelting and Refining Company, was the speaker, and he presented the subject in a most interesting manner.

Copper was exported to England from New Jersey as early as 1630, and has been mined in various places in Bergen, Essex, Somerset, Middlesex, Union, Hunterdon and Warren Counties. Warren County boasts of having the first copper mine operated in New Jersey—the Pahaquarry Mine, which was worked from 1655 to 1664. Today mineral collectors still search many of these abandoned mine "dumps" for specimens.

Mrs. Louise Borgstrom
Elcock Ave.
Booton, N.J.

North Jersey Mineralogical Society

Mineral formations which grow in caverns were described and illustrated for members of the North Jersey Mineralogical Society at its March meeting in Paterson Museum. The meeting was attended by more than seventy members and guests, and all participants in the program were members of the Society.

The principal speaker was the president, Wilfred Welsh. He and Mrs. Welsh had visited a cave in the Wasatch Mountains of Utah last summer and brought back numerous specimens of cave minerals which they displayed, and a series of colored slides of the cavern interior.

Mr. and Mrs. Charles Franz visited the Carlsbad Cavern in New Mexico last year, and Mr. Franz showed a series of colored slides from several of its great rooms which have been explored and opened to visitors.

Nearly all caverns are in limestone formations, Mr. Welsh said, where the soft stone has been dissolved and carried away by underground waters. The stalactites and stalagmites which respectively grow down from above and build up from the cave floor, are composed of lime—calcium carbonate—from solutions; also the exquisite smaller formations which grow out on them and are known as cave flowers.

He said the rate of growth of all these forms depends on the amount of surface moisture which can percolate down through the rock, and may vary widely from one portion of a cave to another. Some of the formations remain dazzlingly white—their normal color—and others appear greenish from tiny plant growths; some are colored by oxides of iron and other metals, and may range all the way from pale yellow through buff and orange to dark brown.

The terms stalactite and stalagmite are properly applied only to cave formations, he said, but other minerals can and do grow in similar ways and are called stalactitic. The finger-shaped quartz and prehnite specimens which have come from local traprock quarries are illustrations.

Herman Grote led the fifteen-minute mineral study period and gave an excellent talk on carbon crystals — diamonds—treating his topic as a mineral rather than as a gem. He explained

the theory of diamond formation by enormous heat and pressure deep within the earth, and contrasted the hardness, brilliance and transparency of the diamond with the opposite appearance of its sister carbon, graphite, which is very soft, often dull and always opaque.

Historic knowledge of diamond gems goes back some 8000 years to India where they were first cut and polished; thence to Ceylon, to Brazil and now to South Africa. He said the older regions still produce diamonds but in no such quantities as South Africa.

He showed a wire-drawing die, which is essentially a diamond with a hole drilled in it, mounted in a disc and used in wire mills where miles of fine wire can be made by pulling metal through the hole with no sign of wear on the diamond. He said sawing has now largely replaced the old method of cleaving rough diamonds for jewels, and showed a tiny bronze saw which is used in the business. A core made by a diamond drill through rock exemplified another industrial use of this hardest of all substances.

Mr. Grote mentioned the many shades of color in which natural diamonds may occur and spoke of the cyclotron process by which white diamonds are now being turned out in color. By means of a black light he showed diamond fluorescence and surprised several wearers of the gems by demonstrating this phenomenon.

Color slides of the mineralogical convention in Diami, Florida, last fall were shown and described by Wesley Hayes who was the local society's delegate and were given by him to the society's library.

Marian Brown Casperson
Publicity Chairman
9-11, Hamilton St.
Paterson, N.J.

Westminister Mineral Club

On Feb. 10th, 1955, the Westminster Mineral Club held its first meeting with seven members as a starter. We hold meetings the 2nd and 4th Thursdays of the month at 7:30 P.M. until there is a substantial increase in membership the meetings will be held at the home of the president.

Mrs. Vance Butterfield, Pres.,
Westminster Mineral Club
Westminster, Mass.

Mid-West

Chicago Rocks & Minerals Society

Even five-sided crystals, which of course, are ersatz, were shown by Mr. Roy Beghtol, when he lectured to the Chicago Rocks and Minerals Society on the evening of March 12, 1955.

Mr. Beghtol, one of the founders of the Earth Club of Northern Illinois, also an eminent structural engineer, discussed the structure and reason of crystals of all shapes and properties. A difficult topic, but superbly handled and demonstrated. Our thanks for an educational evening.

April 9th Meeting

E. Goff Cooke assisted by his wife, Helen, past president of Chicago Rocks and Minerals Society, presented an entertaining lecture on the evening of April 9th, 1955.

Many beautiful color slides of the Great Colorado Plateau were shown with running commentary by Mr. Cooke. Many locations of uranium discoveries in the great Southwest and upper plain states were discussed and other possible sites calculated according to certain rock strata.

"Canyons of the Southwest", a beautiful colored movie, photographed by the Cookes closed the evening.

Des Moines Lapidary Society

The Des Moines Lapidary Society met at the Des Moines Art Center in Des Moines, Iowa, Saturday evening March 19, 1955 for the Social meeting of the month.

Gus Brown, President, called the meeting to order and introduced the guest members. He pointed out that friendliness is the motto for the club.

The speaker of the evening, "Cap" Smith, gave a fine program on the Southwest where he and his wife had spent several months. "Cap" had maps of the choice hunting spots and some excellent specimens of the rocks they did find. He also told us of the new book his wife has written that will be out by fall of 1955. It is "Gold on the Desert" by Olga Smith and concerns the adventures the Smiths encountered as they lived on the desert while developing their copper mine.

Intermission was a pleasant surprise as the Art Center opened the art galleries so that guests could view the current exhibit on Mexico. Many paintings, costumes, pieces of pottery, wood carving, weaving, and jewelry were on display.

The final part of the program was a report on the magazine ROCKS AND MINERALS given by Mrs. Wayne Jones.

Next month for the April meeting a real treat is in store. It's to be "Braggin Rocks" and every one is welcome to bring out his very best.

Mrs. Wayne Jones
Coresponding Sec.,
Wick, Iowa

Rocky Mountains

Cheyenne Mineral & Gem Society

The Cheyenne Mineral & Gem Society had their first banquet meeting at the Sky Trail banquet room Sat. evening April 2nd with 83 members and guests present.

The centerpieces for the tables were interesting specimens which the members upon arriving were asked to identify.

won the adult prize and David Wensky the Jr. prize for correctly identifying the greatest number of them.

Dick Atkinson, a junior at College High School of Greeley, Colo., gave a talk on Crystalography. He made models of the six major xL systems and some of their variations and had about 40 from his collection of over a hundred on display, together with some xls he had artificially grown in his home workshop.

The Pebble Pups gave a report on their monthly meeting and told about their project for the RMFMS convention and display, and surprised the adults by reciting Moh's scale of hardness. How many of the adult members could do it?

After the meeting was adjourned a gab fest was enjoyed, after which the hoot owls further adjourned to the Laughlin's Rock Room to continue far into the night! the burning question being . .' does stalactitic agate grow inward or outward?'.. WHAT DO YOU THINK?

Mrs. R.J. Laughlin, Corres. Sec.
204 E 3rd Ave
Cheyenne, Wyo.

Albuquerque Gem & Mineral Club

Highlighted with outstanding speakers and three field trips, the 1955 program of the Albuquerque Gem and Mineral Club is already in high gear with its memberships for the 200 mark.

January's meetings included on the 17th a talk on "Amber" given by a club member, Major James W. Kerr, U.S.A., whose 12 years in service took him to far places on the globe where he studied handicraft as a hobby. On Jan. 31, "Demonstration Fair" attracted a near record audience which saw fellow members demonstrate their abilities. Program participants were Cay Kunz, silver work; Edith Morse, chain-making; Lois K. Heister, personalized earrings; Hank Schreiber, silver casting; "Woody" Wood, gem faceting; Dan Gill, gem-lap precedure; William "Bill" Shute, jewelry making; Russell Parkhurst, arrowhead making, and Mr. and Mrs. W.O. Coleman, mounting and displaying points and fossils.

Dr. Vincent C. Kelley, professor of geology at the University of New Mexico, discussed "Some Geological Features of the Colorado Plateau", at Feb. 14 meeting. On the 28th two important southwestern institutions, Fred Harvey and the Santa Fe Railroad presented for the club "The Arts and Crafts of the Indians of the Southwest". Epoch marking movies were accompanied by a showing of rare Indian pottery, blankets, rugs and jewelry.

"The Geology of the Sandia Mountains" was the subject of Dr. E.R. Harrington, director of Albuquerque's secondary education with degrees in geology, civil engineering and education, when he was a club guest on Mar. 14. That same mouth the club innovated a "Junior Night" on Mar. 28 by honoring its 45 student members. Directed by Mrs. Lois K. Heister, short talks were given on hobbies or interests by Gretchen Brown, Trudy Schuyler, David Kunz and John Solenberger,, all junior members. Stewart Lewis served as M.C. A senior member, Miss Gladys Short, had on view select pieces from her extensive petrified wood collection.

A trip on Mar. 13 to Cabizon Peak Area, an interesting location in N.M. where the ghost town of Cabizon is located, was the club's first field outing for 1955. Calcite geodes and fossils were found. Jess McKee was in charge of an overnght field trip, Mar. 19 and 20, to the Lindberg Agate Beds south of Deming. On April 17, members travelled via caravan for a day at Kelly, N.M., where items included smithsonite from Kelly Mine; pyrite from Waldo mine and azurite from Juanita Mine.

This club regrets the removal from the membership rolls by death the name of Alva H. Gunnell, a well known figure in Southwestern mineral circles.

Club members recently were given an article "Pseudomorphs", written by Mrs. Heister, for addition to their permanent note-books which they received upon joining the club.

Mrs. E.K. Solenberger
10024 Matthew Ave. N E.,
Albuquerque, N. Mex.

TUCSON GEM AND MINERAL SOCIETY

When a dozen members of the Tucson Gem and Mineral Society went to the Phoenix Mineral show March 5th and 6th, 1955, they did not realize that in two weeks they would be having a very successful show themselves. Each year some of the members make this trip to have a chance to see the wares of dealers from all over the southwest and the collections of other rockhounds and the lapidary work.

This year Dan Caudle came back from Phoenix with this idea: "We could do it too!" And we did! it took a lot of talking to convince the society members that we could put on a good show in a very short time and a lot more work to get posters printed, rules for contestants formulated and printed, television spots planned and notices to radio news programs. Mr. Caudle acted as general chairman for the show and by 9:00 A.M. on Saturday, March 19th, had everything ready for opening to the public.

The show was held in the auditorium of the Helen Keeling School, March 19th and 20th, with eleven dealers participating, several displays of lapidary tools in action, many fine collections of minerals and lapidary work in glass cabinets and a special display of uranium minerals. First, second and third place ribbons were given in each of several classifications for adults and for children. Many door prizes, donated by the dealers, were given at intervals throughout the two days of the show. Our guest book showed over 1300 names of those who attended from nearly all of the forty-eight states, Canada, Mexico, and Hawaii.

At the March 21st meeting of the society we spent most of the time bragging about the show. Some special reports were given and credit to

those who worked so hard to make it a success. There was much discussion about what was good and what needed to be done differently at future shows.

The meeting of April 4th was a member participation night, with each member bringing a favorite specimen and giving a short talk about it. Mr. William Schussler, a member, gave a helpful talk on polishing semi-precious stones, showing some he had done, and showing the tools he used.

Mrs. Thelma Sawinsky showed borax crystals she had gathered at Boron, Calif., larger than usual and kept in a bottle so they would not lose moisture. Mr. Fordham brought a large piece of fulgurite, formed by lightning passing through sand. It was very fragile and looked like a small tree limb, with projecting knots. Mrs. Lena Marvin told about an interesting experience when friends took her to dig for Herkimer "diamonds" on a recent visit to New York. All of us enjoyed this meeting more than usual as we become better acquainted with both the minerals and the people who tell about them.

A field trip was planned to Las Guijas for April 17th. This is an area where there are several tungsten mines. Members and visitors met at 8 A.M. in South Tucson and made the trip in caravan. Twenty-eigth people went and collected specimens of wolframite in quartz, some quartz crystals, chalcedony, chrysocolla, and agate. Visitors also collected some desert experience as we met three rattle-snakes and one Gila monster, none giving us any trouble, although we were the invaders.

Mrs. Irene Barber, Pub. Chm.
2854 N. Euclid
Tucson, Ariz.

MINERALOGICAL SOCIETY OF ARIZONA

Junior Program, Apr. 1, '55

A fine program presented by 15 junior members highlighted The April 1st meeting of the Mineralogical Society of Arizona. The program was directed by their leader, Mrs. Esther Mosiman. Junior member, Bob Gillette, was master of ceremonies.

A lecture on the geological history of Arizona, one of the finest the society has ever heard, was given by 16-year-old Sue Fisher.

Eddie Cline told the facinating story of the topaz.

Little known facts of sulphur were explained by Sue Dutton.

Arizona's chief metal, copper, was described in its different phases by Johnny Rau, who illustrated his talk with choice copper minerals.

An original poem, "How to collect Minerals", was recited by Carole Mosiman.

The quartz family, one of the commonest and most beautiful of all mineral families, was discussed by Bob Gillette.

Mineral wealth in Arizona ranks second to agritulture, explained Rita Mosiman, who gave many reasons why we should study and know our minerals.

Top subject of today's interest, uranium, was described by Douglas James along with its chief minerals, pitchblende and carnotite.

Igneous rocks, the dark crystalline rocks which form the earth's framework, were discussed by Emily Getsinger.

Jimmy Nelson gave a talk on mercury and its principal mineral, cinnabar. Mercury is a metal of a thousand uses.

Wallace Meyers told how quartz crystals, came to be named by early people who presumed that they were a form of ice especially hard.

Gold and silver, the precious metals, were the subjects of Sue Stites, who explained that gold is the most widely distributed of all metals.

Vanadium, often associated with uranium ores, especially carnotite with lead ores, was described by Jimmy O'Callahan.

Janice Kirchner explained the many uses of the fifteen rare earth minerals.

Dickey Benham read his own paper on dinosaurs—dinosaur meaning terrible lizard. A contemporary monster, the brontosaur, was known as the thunder lizard. Dickey took these jaw-breaking names of prehistoric monsters with the ease of an adult.

Joseph Kress and Billy Lasko were unable to attend.

The junior members displayed specimens (all except dinosaurs and brontosaurs) to illustrate their talks and did an outstanding job. Plans to tape-record the program did not work out. Adult members who have worked with the young people in past years to put on these interesting programs are Mrs. Mosiman. A.L. Flagg, Mrs. Edna Barritt, Mr. and Mrs. Harry Hill, Mrs. Trudy Mills and Mr. and Mrs. Russell Trapnell. At the conclusion of the program each participant was given specimens donated by Mr. and Mrs. Harry Hill.

A summary of Junior Programs was given by Mrs. Moulton Smith. In 1945 the first such event, the juniors presented displays only. In 1946 their displays included thumbnail specimens which were just coming into prominence, and Dick Burr read a paper on quartz as a Boy Scout project. There were four participants.

In 1947 four juniors got together a fine exhibit on short notice and presented two papers. In 1948 the program was "bigger and better" with five participants.

In 1949 four papers were read, one of them, "My Minerals" by Maryana Webber, in which she explained her method of cataloging her collection and a system of note-making. This year five participated.

By 1950 the juniors were gathering speed. The talks were on minerals used by the primitive people, different forms of gold-bearing minerals, primary ore zones, and demonstrations of field tests. Seven juniors put on this program.

In 1952 there were three only—all girls. The talks were on vanadium, barite and fossils. Other activities kept the boys away from the meeting.

Though there were 41 junior members in 1953 only five took part in the program. The subjects were; cleaning minerals, collecting thumbnail specimens, gold, gypsum and halite.

In 1954 fourteen top juniors put on an excellent program, the nature of petrified wood, the manufacture of salt, processing copper, quartz, mica, sulphur, coal and corundum. More field tests and original poetry.

It is heart warming to note what the mineral hobby is doing for these young people. With sincere encouragement from parents and teachers, more young people could become interested in this important branch of science.

Ida Smith, Cor. Secy.,
2010 West Jefferson,
Phoenix, Arizona

NATIONAL CONVENTION OF
The American Federation of Mineralogical Societies

The National Convention of the American Federation of Mineralogical Societies will be held in the East this year for the first time. The Eastern Federation will be hosts at the Shoreham Hotel in Washington, D.C., on September 27, 28, 39, 30, 1955. The entire convention facilities of this nationally known hotel have been leased so that there will be room for all who wish to come and all who to wish to exhibit. Space has been provided for seventy booths for commercial exhibitors and for as many clubs and individuals who wish to enter displays either in competition or for other reasons. The dates have been set for Tuesday thru Friday so that out of town visitors will have ample time to see the sights of the Nation's Capital. Monday, September 26, has been provided for setting up of displays and exhibits and there will be willing hands available to assist. Saturday will be available for packing up material. Everything is being done to make the visitors stay at the convention a comfortable and enjoyable one. Plans are being developed to provide for a field trip to the world famous Amelia Courthouse, Virginia Collect-area.

For the dealers in cutting material and mineral specimens the show should provide a golden opportunity to reach one of the fastest growing markets in this field. The Eastern Federation has twenty-two member clubs and is expanding rapidly. Unfortunately the supply of good cutting material and mineral specimens is limited in this part of the country and only available through mail purchases at present. Collectors and Cutters are most anxious to obtain good material and are awaiting the Convention with great interest. There are also one million eight hundred thousand persons living in the metropolitan area of Washington who are among the most hobby-minded in the world. This group will be exposed for the first time, to a major show of Gems and Minerals and many will have an opportunity to start in this hobby .

For the Clubs and their members throughout the United States, this show will give them an opportunity to compete on an intersectional basis with other cutters and collectors. It is planned to have a national competition with entries limited to persons and clubs who have previously won sectional competitions. Clearances are now being made with the National organization to permit this contest. The rules for the show are being simplified so as to eliminate certain confusions which seem to exist in most shows. These rule changes have been submitted to the Eastern Federation membership for approval and should be released within the next thirty days. Details regarding housing, program, entries for the competition will be released in the very near future.

Information on commercial space may be obtain by writing to: Arthur J. Campbell, Executive Vice President Eastern Federation 5904 Cobalt Road, Washington 16, D.C.

Transfers subscription!

Editor R & M:

Please transfer my subscription to a friend who I know is much interested in ROCKS AND MINERALS. I have given him all my issues and know they will be well enjoyed and preserved.

As evidence that they are preserved, you will be interested in the fact, while I have not advertised in your R & M for the past few years due to lack of energy in my old age—I recently received an inquiry from Bonn. Germany, and also one from the State of Washington in regards to fossils. This should prove how popular and far reaching your nice magazine is —and —goes.

R. Veenfliet
Seven Elms
Schoharie, N.Y.

Jan. 7, 1955

Most circulated Magazine in Library!

Editor R & M:

One again it is time to renew our Society's subscription to your most enjoyable magazine. Enclosed is our check for $3.00 to cover a years subscription.

It is still the most circulated magazine in our library.

(Mrs.) Geo. H. Learned, Jr.
Treasurer
P.O. Box 501
Concord, Calif.

Feb. 19, 1955

Publications Recently Received

LONGWELL-FLINT—
Introduction to Physical Geology.
By CHARLES R. LONGWELL, Henry Barnard Davis Professor of Geology, and RICHARD FOSTER FLINT, Professor of Geology, both of Yale University, 1955. 432 pages. 6⅛ by 9¼ Illus. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.
Cloth. $4.95

Concentrates on the *principles* of physical geology and develops them through a thorough examination of field evidence. More than 340 drawings and photographs aid in the explanation.

CONTENTS—The Science of the Earth. A General View of the Earth. Materials of the Earth's Crust. Geologic Time. Igneous Geology. Weathering and Soils. Mass-wasting. Running Water. Sculpture of the Land by Streams and Mass-wasting Ground Water. Lakes and Basins. Glaciers and Glaciation. Wind Action and Arid Lands. The Sea; Submarine Geology. Waves, Currents, and the Sculpture of Coasts. Sedimentary Rocks. Deformation of the Earth's Crust Metmorphism. Earthquakes; The Earth's Interior. Mountains and Geosynclines. Geology in Industry, Appendix A: How to Identify Common Minerals. Appendix B: Identification of Common Rocks. Appendix C: Maps. Appendix D: Symbols and Conversion Tables. Index.

SCHULTZ-CLEAVES—
Geology in Engineering
By JOHN R. SCHULTZ, Chief, Geology Branch, Waterways Experiment Station, Vicksburg, Mississippi, and ARTHUR B. CLEAVES, Professor of Geology, Washington University; with a chapter on Soil Mechanics by E. J. Yoder, Research Engineer, Joint Highway Research Project Purdue University. 1955. 592 pages. 5⅝ by 8⅝ 214 illus. Cloth. $8.75. *College edition also available.* Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.

Integrates geology and engineering. Treatment is analytical rather than descriptive with principles being stressed over case histories. Complete chapters on frost action in coils and aerial photographic interpretation of soils.

CONTENTS—Geology and Its Relationship to Civil Engineering. Minerals. Rocks. Geologic Structure. Subsurface Water. Rock Weathering and Soils. Erosion and Deposition by Streams. Desert Land Forms. Shore Lines and Beaches. Glaciers and Glaciation. Frost Action in Soils. Landslides and Related Phenomena. Volcanoes and Earthquakes. Historical Geology. Geologic Maps and Sections. Aerial Photographic Interpretation of Soils. Soil Mechanics. Subsurface Exploration. Dams and Reservoirs. Tunnels. Highways and Airfields. Concrete Aggregates. Index.

HANDBOOK FOR TEACHERS OF EARTH SCIENCE

A.W. Marion, Director, Ohio Department of Natural Resorces, announces the publication by the Division of Geological Survey of a New Report, "Handbook for Teachers of Earth Science," by Mildred Fisher Marple and Walter C. Brown: information circular No. 15, 61 pp., Illus., maps, 1955. Price 50 cents. Copies may by obtained from the division of geological survey, room 106, Orton Hall, Ohio State University, Columbus 10, Ohio.

According to Mr. John H. Melvin. chief of the division of geological survey, this book was written to help teachers. It presents, in non-technical language, a wealth of background information on minerals and rocks, and on the geologic history of Ohio. discusses the meaning of landscape, the reasons of the different types of soils, and the mineral resources of the state. One section is devoted to suggestions for "THINGS TO DO AND HOW TO DO THEM" with examples of how ideas can be developed into projects for individual and group study in the field, the laboratory, the library and the class room. In addition to an extensive bibliography, the Handbook lists organizations and individuals in all parts of Ohio who are ready to help teachers solve their problems in Earth Science Instruction.

Classification of Rocks (publication)

Marking the beginning of its second half-century of service to the mineral industries, the Colorado School of Mines Quarterly has released a significant publication of vital interest to both professional geologists and amateur "rock hounds".

"Classification of Rocks." Volume 50, Number 1 of the Quarterly, is the work of Dr. Russell B. Travis, assistant professsor of geology at Colorado Mines and a 1943 graduate of the college.

Knowing by experience of the confusion and misinformation resulting from the many and various methods of rock nomenclature, Dr. Travis has attempted to name rocks on the basis of visible features, using terms and conventions generally accepted at present.

As a consequence, the publication is of extreme importance to organizations engaged in exploration for petroleum, metals, non-metals, and radioactive mineral deposits whose development programs depend on standardization of rock names among many men and departments.

Included in the Quarterly are full instructions for naming any rocks—igneous, sedimentary, or metamorphic—and three complete reference charts, each nine by sixteen inches, for use in the field or classroom. Sixty-six photographs illustrate features described in the text.

"Classification of Rocks" may be secured from the Department of Publications, Colorado School of Mines, Golden, for $1.00 postpaid in the United States.

California Publications

Los Angeles County, California's leading mineral producer, is featured in the latest issue of the California Journal of Mines and Geology (Vol. 50, nos. 3 and 4, dated July-October, 1954) which is now available, according to an announcement made by Olaf P. Jenkins, Chief of the Division.

Los Angeles County leads the state in the value of its mineral production. In 1951, for example, the county produced nearly 300 million dollars worth of minerals, of which about 90 percent was oil and gas; the county's total production through the years has been more than four and a half billion dollars worth of minerals, oil and gas, again, predominating.

The entire issue, including all maps, is priced at $2.00. Copies may be ordered from the Division's San Francisco office, Ferry Building, or may be purchased over the counter at the San Francisco offices, or in Los Angeles at the State Bldg., 217 W. First St., Rm. 402B, and in Division of Mines offices in Sacramento and Redding.

A new report on the Ubehebe Peak quadrangle, containing the old Ubehebe mining district in Inyo County, has just been released.

Entitled "Geology of mineral deposits in the Ubehebe Peak quandrangle, Inyo County, California," the new report—number 42 in the Division's Special Report series—deals particularly with the lead-zinc-silver, gold, copper, and tungsten mines. James F. McAllister of the U.S. Geological Survey is author; his work was done as part of a cooperative study of California mineral deposits made by the Federal Survey and the Division of Mines.

Besides descriptions of the most important mines, the report includes an annotated list of 75 minerals that are found in the quadrangle. Among the minerals are many that will interest collectors and lapidarists, such as jasper, allanite, opal, wollastonite, vanadinite and wulfenite.

The 63-page, well-illustrated report, bound in tan paper, is sold at $2.00 per copy, plus 3 percent tax for California residents. Copies may be ordered from the Division's San Francisco office, Ferry Building, or may be purchased over the counter at the San Francisco offices.

A new reprinting of the guide to the mining laws of California for use by prospectors and miners, issued by the Division of Mines, has just been released.

The pamphlet, entitled LEGAL GUIDE FOR CALIFORNIA PROSPECTORS AND MINERS, compiled under the direction of L.A. Norman, of the staff of the Division of Mines, deals with the manner of locating and holding mineral claims, mineral patents, state and federal lands, water rights and water pollution regulations, safety regulations, and gold-buying rules.

As the title indicates, the publication is intended as a handbook for the use of those interested in mines and mining; it contains information of a general nature for those wishing to establish rights to a new mineral discovery, or to maintain rights on an already established one.

The book, first issued as a supplement to the July 1952 issue of Mineral Information Service, contains 78 pages and 3 figures. It is priced at 25c, plus 3% sales tax, and may be ordered from or purchased at the Division of Mines offices in the Ferry Building, San Francisco 11, or may be purchased over-the counter from the Division's offices in Los Angeles at 217 West First Street; in Redding at the Natural Resources Building, Cypress and Landing; or in Sacramento, in the Division's offices on the third floor of the State Office Building.

Albanese's Latest Price List

John S. Albanese, P.O. Box 221, Union, N.J., who specializes in fine mineral specimens, has recently issued his latest price-list. This is an 11-page pamphlet, featuring minerals from world-wide localities. Many are rare specimens and as a number may be only "one of a kind", collectors should rush their orders in to Mr. Albanese before some choice items are sold.

Alta Industries 1955 Catalog

Alta Industries, 2123 W. Encanto Blvd., Phoenix, Ariz., have issued a 1955 catalog. This is an 8-page illustrated publication featuring Alta products (lapidary equipment).

Burminco's New List of Minerals

Burminco, 128 S. Encinitas, Monrovia, Calif., have issued an 8-page new list of minerals—some choice specimens carried in stock. The specimens listed are from world-wide localities and many are very, very nice.

Plummer's — New List for Rockhounds

Plummer's, 4720 Point Loma Ave., San Diego 7, Calif., have issued an 11-page (large sheets) pubication covering many items carried in stock such as rough gem material, sawed slabs, polished gemstones, uranium ores, and minerals in general; books and supplies are also featured.

Southern Engineering & Metal Products, Inc. issue pamphlet on Lynnco Faceting Machines

An 11-page, beautifully illustrated pamphlet on Lynnco faceting equipment has recently been issued by Southern Engineering & Metal Products. Inc., 3550 N.W. 59th St., Miami 47, Fla. The machine is "A Completely New Approach to Accuracy in Faceting" is the slogan of this Florida firm. All readers interested should write for a copy of the pamphlet.

April 20, 1955

R & M is Consistent!

Editor R & M:

Enclosing another year's subscription naturally, as ROCKS AND MINERALS remains the only publication consistent in the presentation of mineral specimen information for the student and collector.

C. E. Snyder
P.O. Box 682
Paradise, Calif.

Feb. 22, 1955

LOOKING BACK TWENTY-FIVE YEARS AGO

in ROCKS & MINERALS . . . JUNE 1930 issue

Special Maine Number

This was the issue that started the mineral club movement throughout the United States. Before this issue came out, there were only four clubs in the country —New York Mineralogical Club, Philadelphia Mineralogical Socitey, Newark Mineralogical Society and the Maine Mineralogical and Geologicel Society. When this Special Maine Number made its appearance, it created a sensation and we were swamped with orders for copies and fortunately we anticipated the orders and so had many extra copies printed. The demand for copies was especially heavy from California and soon clubs began springing up in that state, later in Oregon, then in other states until now practically every state in the union has at least one mineral club.

Novice Column

In the Sept.-Oct. 1953 R&M, Gordon ViGario, 2231 Pine St., Bakerfield, Calif. suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember the novices do not know one mineral from another, so please be as helpful as you can.

The following is the 10th list of novice collectors.

Freddie & Howard Deutsch, 11521 Orum Rd., Los Angeles 24, Calif.

Robert Booth, (10 yrs.), 14047 E. Glenn Dr., Whittier, Calif.

Norman Danielson, (13 yrs.), 129 E. King Ave., Orlando, Fla.

Charles H. Thomson, 2104 Magnolia Ave., Pensacola, Fla.

Mrs. Lee C. Smith, P.O. Box 992, Council Bluffs, Iowa.

Chas. B. Kallmeyer, 145 Division St., Bellvue, Ky.

William McCarron, 41 Grove St., Merrimac, Mass.

Philip B. Parsons, Jr., Tabor Academy, Marion, Mass.

Fred White, (12 yrs.) 27 High Rock St., Westwood, Mass.

Mrs. M. L. Hall, Bancroft, Mich.

Ray Hario, (11 yrs.), 321 E. Pattison St., Ely, Minn.

Leslie L. Smith, Jr. Station A, Mississippi Southern College, Hattiesburg, Miss.

John J. Ballentine, 176 Pleasant St., Laconia, N.H.

Susan Banse, (9 yrs.), R-2 Cross Keys, Williamstown, N.J.

Don Page, 1 Clarence St., Binghamton, N.Y.

Walter Sainio, 1553 Union Port Rd., New York 62, N.Y.

Mrs. Joy Hintz, 500 E. Perry, Tiffin, Ohio

Robert D. Young (12 yrs.), Box 264, Kaysville, Utah

Bradford K. MacGaw
(Obituary notice)

Bradford K. MacGaw, 43, head of the department of geography and geology at the University of Chattanooga in Chattanooga, Tenn., died Tues. Jan. 25, 1955.

Prof. MacGaw came to the University in 1946 and was appointed assistant professor of geography and geology in 1947.

He was one of the founders of the Chattanooga Rocks and Minerals Club, and his passing leaves a great void in our midst. He was a man of unusually high ideals and he lived up to them. In club affairs he modestly stayed in the background and yet was always ready to help. His sincere personality made him respected and admired. For us to lose such a close friend is indeed a shock. He will long and warmly be remembered by us all.

Geo. C. Olmsted

Had a busy winter!

Editor R & M:

Had a busy winter since I had the "write ups" in World Minerals Column in R & M. Have received lots of letters and have done a lot of trading. All of it satisfactory.

Earl U. Mayer
1753 1st St.
Yuma, Ariz.

March 30, 1955

Two Good Magazines!

Editor R & M:

Once again it has come the time of year to renew. Have been a subscriber now for about 20 years, so you will know the magazine has been enjoyed. I get MINERALOGIST from Dr. H.C. Dake to which I have subscribed for nearly as long. I find each magazine fills a need of its own, and although ROCKS & MINERALS is a fine publication, I find I would be lost without the other.

J.W. Collins
3607 Walnut St.
Lynwood 4, California

March 14, 1955